ORIGINS, CHRONOLOGY AND METALLURGY OF THE BENIN WALL BAS-RELIEFS

by

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Abstract

The existing hypotheses of the origins and chronology of Benin art, particularly the bas-relief wall plaques are severely limited. It has been assumed, based on oral tradition, that cire-perdue casting was transferred from Ife to Benin during the rule of Oba Oguola (ca. 1280 or 1380). Analyses of the physical data from Ife and Benin show that such a transfer did not take place. It was suggested in 1965 that copper alloy casting probably came to Benin from a more northerly source astride the Niger-Benue confluence. A re-examination of the historical information, oral traditions, physical data, and the morphology of the 'Tsoede' bronzes with those previously labelled Benin and now called 'Lower Niger Industries' supports this speculation. The evidence also indicates that there were two Benin metal working traditions: the earlier or bronze period from Obas Oguola to Ewuare, and the later or brass period, which began in the reign of Esigie. I have shown that the wall reliefs are to be assigned to this second period.

Since there exists an internal consistency within Benin art I have used comparative techniques between the reliefs and full sculpture. Such a comparison indicates that the plaques must be divided into at least two periods. Period I: Esigie to Ozuere. Period II: Akenzua I to Osemwede (?). It is also shown that the plaques served more than one function.

Comparison of the chemical composition with known brasses show Benin materials to be very consistent with European alloys of the fifteenth through eighteenth centuries. Using alloy content and visual evidence an argument is presented that the type 5, Oba memorial heads (those with winged caps and flanged bases), are incorrectly dated by about one century.

Acknowledgements

This initial section is probably the pleasantest and most difficult of the entire dissertation to write. It provides the opportunity to review correspondence and other documents collected over a few short years of research and travel. Memories come filtering back and for an instant one officially day dreams about people and places and the occasional experience connected thereto. How quickly such intangibles are swept into a corner and how rarely we allow ourselves the luxury of looking back and savouring a bit of the past.

I never realized beforehand that weeks and months spent in libraries and museums throughout Europe bore little or no causal relationship to the real world of Africa. The juices of life have been squeezed out of learned tomes and sterile displays. It is this, the very essence of the continent, which came smashing back the moment I disembarked from the aircraft at Lagos. It is to the people of Africa that I owe the greatest debt.

I spent the last third of 1977 living and gathering information in Southern Nigeria, with the majority of time being spent in Benin City. In Benin I lived with Charles Aigbe, a Benin brass-caster, and his family, on Upper Sopkoba Road. I learned much, and deeply appreciate and fondly remember the courtesies and kindness which were extended. There were shorter periods of time spent in Ibadan, Abeokuta, Ife and Lagos. I owe a debt of gratitude to the Federal Department of Antiquities and its Director, Dr. Ekpo Eyo, and E.P. Arinze, curator at the National Museum, Lagos, for the aid and assistance throughout my stay.

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In the process of gathering photos and other materials I came in contact with many museums and universities throughout Europe, Africa and the United States. Almost without exception all my requests for documentation were promptly acknowledged and the relevant information forthcoming. In many cases the usual charges were waived. In the many museums that I personally visited in Europe and Africa I not only was given access to the collections but oftentimes I was allowed to photograph and I was provided with personal assistance. In places where I could not photograph I was given photos. However, in all these cases I was greatly aided by museum personnel, with technical assistance and in many other ways. It is to all these people that I acknowledge a great and lasting debt.

The British Museum permitted me to use unpublished data (Appendices 2 and 3),collected by their Research Laboratory, and concerning their Benin collection. This gesture is gratefully appreciated.

Contents

Introduction

One of the most serious problems which occurs when one attempts to focus on a phase or portion of the art of a particular culture is the necessity to draw boundaries which are artificial restraints. The system is then viewed sterilely, so that the necessary inputs may be determined in the effort to resurrect the dead. One tends to forget that these inputs are themselves interpretations. A particularized analog is constructed and a solution is sought whether or not there is sufficient input. The guess factor, or operating variable, forces a solution. The result is at best a second or third order distortion. It is the constant reconstruction of an analog which permits a closer approach to an understanding of the problem.

Exactly this has been done with the Benin wall-reliefs. Initially they were dissected from Benin culture and given pre-selected inputs plus a different operating variable. The inputs used herein do not vary significantly from those previously used, except that physical data have been added wherever possible, and there is a less blind acceptance of oral tradition as correct chronological information.

Earlier general solutions or conclusions about the art of a culture or area can oftentimes be butchered with consummate skill by the advocates of particularized solutions whose scope is smaller. This is unfortunate, but it does indicate the complexity of the problems under consideration. One owes a debt of appreciation to predecessors who have wrestled with the very same morphologies, usually with much less information. It is only through these earlier formulations that subsequent analyses can be built and progress made.

PART ONE

ORIGINS OF THE BENIN WALL BAS-RELIEFS

Benin City lies some 250 km. east of Lagos in southern Nigeria. It is situated on a low-lying plain covered with sand and drained by a series of underground rivers and streams which flow in a north-south direction. The vegetation is typical high tropical rain forest with swamp fauna located to the south and west of the city (Bradbury 1970, 18). The climate is hot, humid and generally unpleasant, with temperatures often in excess of 38° Celsius. The population of Bendel State, of which Benin City is the capital, has been estimated to be in the neighborhood of 250,000 to 300,000, with the city containing about 60,000 people.

The present Bendel state covers some 4,000 square miles. Prior to the British 1897 expedition to the city the rule of the Oba or king of Benin extended with varying effectiveness over most of the Ishan and Ivbiosakon areas, part of the Urhobo-Isoko lands, and over certain Ibo and Yoruba communities to the west and east (Bradbury 1970,14). At the height of its power in the sixteenth century Benin's frontiers extended westwards along the coast beyond Lagos, north-west to the area of Ottun, where it shared a common boundary with the Oyo Yoruba, and eastwards to the Niger (Bradbury 1973,48).

According to Benin mythology the kingdom was founded by the youngest son of Osanobua (Osa) the high god. With his older brothers, who included the first kings of Ife and the Europeans, he was sent to live in the world. Each was allowed to take something with him and the youngest, listening to the advice of a bird, chose a snail shell. The world was covered with water, and the bird advised the child to overturn the shell. Sand ran out and land was formed. The others were forced to pay homage to the youngest so that they could have a place to settle.

The mythical rulers of the first Benin dynasty are known as Ogiso (ogie=ruler and iso=the sky). The dynasty ended with a revolt because of the oppressiveness of the rule. For a time Benin was without a king but eventually the chiefs sent to the Oni or king of Ife requesting a ruler. Oranmiyan came, found the land vexatious, but managed to impregnate the daughter of a local chief before he left. The son born of this union became Eweka I, founder of the present dynasty from which thirty-eight kings have claimed descent.

Benin is a horizontally and vertically structured divine kingship. The Oba is both the spiritual and political head of state, from whom absolute power flows. There are no rights of deposition. Inheritance is by primogeniture but there have been some notable exceptions. Below the king in various hieratic classifications are the chiefs and retainers some of whom have hereditary titles. Women are officially excluded from government but about three years after an Oba takes office he usually raises his mother to the title of Iyoba or Queen Mother. She is sent to reside at Uselu, outside the city, where she maintains her own court.

The crafts were divided into ward-guilds, within the city, and each one controlled its own internal structure. The most important of these guilds were the brass-casters who may have worked primarily for the Oba. When a commission was being executed for the king the artisan lived and worked within the confines of the royal palace where he became the responsibility of the household staff. There is no real evidence that the craft was exclusively Oba-controlled, or that the king had a continuing monopoly of brass. One of the great difficulties in Benin art is the identification and dating of the probable different styles which may have depended upon purpose and patron.

The metal wall reliefs are only one aspect of an artistic tradition that stretches back centuries. The beginnings of it are still the subject of much heated discussion.

The origin of the Benin cire-perdue casting process is of vital interest in helping to place the wall reliefs in the proper temporal perspective of Benin art and in understanding the morphology of the sculptures under consideration. The dearth of archaeological evidence indicating Benin brass casting prior to the Portuguese advent of 1486 places a heavy reliance upon the available oral traditions.

The most popular tradition is that Oba Oguola (ca. A.D. 1280 or 1380) wished to introduce brass casting into Benin in order to produce works of art similar to those sent to him from Ife. The Oni of Ife in response to the Oba's request sent Iguegha, who is today worshipped as the patron saint of the Benin craft (Egharevba 1968,11). It would be surprising if this prevalent tradition would mention any area other than Ife as the direct antecedent of Benin casting. There are strong cultural links between the two areas. Oranmiyan went to Benin from Ife and founded the present dynasty when the Uzama, hereditary chiefs, requested a king after the first Benin dynasty, the Ogisos, were deposed. Traditionally, the new Oba sent to the 'Ogane' ambassadors and presents

requesting that he be confirmed in title. It has been assumed 'Ogane' referred to 'Oghene' the Edo name for the Oni of Ife (Bradbury 1973, 44). Therefore, to have a royal art with strong cosmological overtones, concerning not only the sculpture but also the metal and casting process, all under the primary control of the Oba, originating from any other place than Ife seems more than unlikely. The direct reference of a royal art being transferred through exactly the same process as the divine kingship is unmistakeable.

There is extreme difficulty in reconciling the present Ife, 150 km. northwest of Benin, with the Oguola tradition. Ife has neither oral traditions nor guilds in connection with brass casting. No archaeological evidence has been uncovered which links a casting industry to the area. The famous Ife brass and copper artefacts were initially found as the result of either building or funeral site excavations to which the Ife kings voiced no objections (Ryder 1965,25-37). An examination of the alloy content and lead isotope ratios of Ife and Benin sculptures indicate different copper alloys. A visual examination of the Ife heads and those from Benin, reputed to be the earliest, re-echoes the alloy findings.

The overall evidence favors a more northerly origin, probably from the Nupe-Igala region, astride the Niger-Benue confluence, as suggested by Ryder in 1965 (225-237). A comparison of the true bronzes found in Benin during the British 1897 expedition and now labelled 'Lower Niger' with those found in the 'Tsoede' Niger area show similarities in alloy content and morphology. It is alleged herein that these bronzes were probably among the earliest Benin castings, or were prototypes used by the Benin craftsmen. It is also concluded that there existed two Benin metalworking traditions: the earlier or 'Bronze Period' and the later or 'Brass Period'. The bronze era was from Obas Oguola to Ewuare and the second more lengthy tradition from Obas Esigie until Osemwede (?).

The scarcity of true Benin bronzes from the earlier period may be indicative of a late full scale introduction from the Portuguese advent in 1486, or continuous remelting and mixing with the later brasses, or even a combination of both. Oral tradition does refer to the encouragement and improvement in brass casting during the reign of Esigie (Egharevba 1968,28).

The cire-perdue cast wall reliefs were most probably an Esigie innovation. The compositions depicting the Europeans and several of the 'Battle or Triumph' scenes are concluded to be among the earliest two-dimensional works. Sixteenth century European influences are unmistakeable throughout Benin art and arguments are made for probable Islamic, Coptic or Byzantine influences either directly or through the media of the probable earlier ivory and wood relief carvings.

Chapter 1

The Ife-Benin relationship

The first major discovery of Ife 'bronzes' occurred in 1938 when seventeen heads, mostly life size or larger, were unearthed in Wunmonije compound, Ife. In 1957 another group was excavated, lying atop a potsherd pavement, during building site construction for the Ife Produce Marketing Union. Subsequent excavation of the Union area revealed two shrines containing terracotta sculptures similar to the copper alloy pieces. Radiocarbon dating from materials at one of the shrines indicated a twelfth century usage. Willett concluded that these metal castings were deposited at the same time as the terracottas and he interpreted the dates as the time of abandonment of the shrine (Willett and Fleming 1976,135).

Thermoluminescence dates for five Ife castings, reported in the Willett and Fleming paper, varied from A.D. 1365±70 to 1535±45. The two Wunmonije compound heads were dated to A.D. 1490±85 and 1440±65. If brass casting was introduced to Benin during the reign of Oguola, ca. 1280 or 1380 (Bradbury 1973,42) it is quite possible this 'style' of head was not used as a reference either by Iguegha or his disciples as they could well have been made one or two centuries after the alleged transfer took place. The earliest Benin casting date reported was on the 12.4 cm. high 'Oni of Ife', TL A.D. 1420±60. The work was identified by Egharevba (Willett and Fleming,139) as a sample done by Iguegha prior to the artisan being sent to Benin. The date is not correlative to the Egharevba kingship list (1968,73-74)[1] but does fall within the range of the Bradbury modification. The other four Benin pieces were all dated after 1486, and fall within the reigns of Esigie through Ehengbuda.

In 1971 (Willett,366) radiocarbon dates were reported from Ita Yemoo in Ife. They were determined from samples of charcoal found in a layer containing terracotta sculptures overlying a potsherd pavement. These dates varied from A.D. 1060±130 to 1150±200. The seven brass castings found on this site were in a comparable stratigraphic position and two were subsequently dated with thermoluminescence techniques. (TL):46.7 cm. high 'Oni' is reported as A.D. 1365±70 and the 28.6 cm.

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(1) All kingship dates are taken from this list.

high 'Royal Pair' as A.D. 1420±45 (Willett and Fleming 1976,138). Illustrations of all the sculptures mentioned in relation to the Willett and Fleming 1976 paper are illustrated therein.

The burial site of the famous Ife king Lafogido was excavated by Ekpo Eyo, and the charcoal findings were radiocarbon dated to A.D. 1105±95 (Willett 1971,366). The TL date of the 'Oni Lafogido' is either A.D. 1515±45 or A.D. 1535±45 (Willett and Fleming,137). The sculpture was termed Lafogido because it was found in close proximity to the reputed burial site of this king. The wide disparity in dates makes one doubtful of a connection between the two.

The earliest radiocarbon dates from Ife are from Orum Oba Ado the legendary burial place for the heads of the kings of Benin and the place from which Oranmiyan set out to found the present Benin dynasty. These five dates range from A.D. 560±130 to 990±130, with the great majority clustering closer to the tenth century (Willett 1971,366).

Radiocarbon dates have been reported from other Ife sites: Obalara's land, A.D. 1190±85 to 1470±95; Weye Asiri, A.D. 1165±75 to 1405±85; Osoya, A.D. 1380±240; Odo Ogbe 1095±95 to 1630±95 (Posnansky and McIntosh 1976, 161-195). Obalara's land is of particular interest not only for the large numbers of terracottas which have been found but also for their uncommon form which included a female torso, and diseased and cone heads. The arrangement of the finds was such as to suggest to the excavator that they might have been used as shrine offerings. The Odo Ogbe site was thought to have been a two time period shrine and altar area (Posnansky and McIntosh,161-195). The four Weye Asiri dates have three bunched within a century of each other and one date in the beginning of the fifteenth century. This also could have been a two period site, or the result of stratigraphic mixing.

The site excavations and associated radiocarbon dates show Ife being used primarily as a grave and shrine area from the ninth century onwards, the heaviest usage taking place from the twelfth to fourteenth centuries, the Willett and Fagg 'Classical Period'. This type of usage does not mean that copper alloy casting was produced at Ile-Ife or necessarily that the area was the site of a populous city.

Radiocarbon dates are not available from Wunmonije compound, so a direct comparison to the reported thermoluminescence data could not be made. Willett and Fleming (1976,142) argue that the Wunmonije dates (two heads and the 'Lafogido') are 'provisionally acceptable' because Wunmonije has always been thought to be later than Ita Yemoo. This also

fits in with Dark's suggestion that these sculptures might postdate the transfer of casting from Ife to Benin. The writers also point out that the TL dates could be somewhat late, or naturalistic sculpture ended at Ife abruptly. If the Wunmonije dates should be earlier there would be less of a fit with the Udo type head, reported in the same paper and dated TL to A.D. 1590±45. The time difference between this 'naturalistic' head and the Ife counterparts would be increased and make correlation more difficult.

Further, no direct correlation can be made between the seventeen heads found at Wunmonije and the Ita Yemoo carbon dates, except the speculations about Wunmonije being later, and the production of 'bronze castings' varying between 125-400 years (Willett 1967,130). The Ita Yemoo dates, circa the twelfth century, have been abandoned in favor of the more problematical fourteenth century thermoluminescence data (Willett and Fleming 1976,143). If the two sets of TL dates are compared, Ita Yemoo and Wunmonije, the data begin to merge, especially in the light of the suggestion of a possible short casting period.

The fifteenth-sixteenth dates of the Wunmonije pieces were considered acceptable (Willett and Fleming 1976,142). In an earlier section of the same paper they wrote:

> "It is possible that as each king was buried, the 'bronze' head was immediately removed from the figure and placed on the shrine. In any case, the shrine subsequently collapsed damaging many of them. Thus the heads were probably all buried at Wunmonije compound simultaneously by the collapse of the building though, individually they may have been buried for different lengths of time before then and in quite different places in the Ife area" (Willett and Fleming 1976,137).

Metastable electron accumulation in thermoluminescent dating is dependent upon the rate of radioactive bombardment and the susceptibility of the clay core material (Ralph and Han 1971,244). Many of the castings dated in the Willett and Fleming paper (1976,144) had no more than a vestige of adhering burial soil from which the environmental dose rate could be estimated. Of necessity assumptions had to be made, since there were no soil samples available from Wunmonije Compound. Six samples were known from Ife and they were all taken from within a mile of the Wunmonije excavation. The average value of the six was used, which varied between 0.079 rad per year to almost double or 0.143 rad per year, and the average used was 0.104±0.026 rad per year. Only one of the four castings from Benin carried sufficient adhering soil from which the environmental dose rate could be estimated (Willett and Fleming 1976,145).

In 1975 Willett wrote:

> " Two shrines with terracotta sculptures were excavated at Ita Yemoo, both of which rested on potsherd pavements. The original discovery of copper alloy castings was made by builders workmen, who removed the layer in which they had been lying, but enough evidence remained to show that these objects too had lain on a potsherd pavement. All the three potsherd pavements on which these groups of sculptures lay, (probably all of which constituted shrines) appeared to be contemporary. Thus the radiocarbon dates from the shrine with terracotta sculptures can be extended with a fair degree of confidence to the other two, and we may infer a twelfth century date of deposition for all of them. In a recent excavation at the site of Lafogido, in the center of Ife, Ekpo Eyo, Director of Antiquities, discovered terracotta sculptures of the heads of animals placed on the necks of globular pots set beside a potsherd pavement which is thought to cover the burial place of the Oni Lafogido. Charcoal overlying this pavement produced a twelfth century date (I-4911). Thus we can no longer doubt that the naturalistic sculpture in copper alloys and terracotta for which Ife is famous and which serve to define what WILLIAM FAGG and I have called the Classical Period were being made around the twelfth century. Indeed the fragmentary nature of the terracotta sculptures at Ita Yemoo and to a lesser degree at Lafogido where a detached arm and an incomplete stool were excavated, suggest that the sculptures may already have been old at the time of their deposition" (Willett 1975,299).

It is not quite understood why the problematical thermoluminescence dates of the Ita Yemoo pieces seem to be preferred to the more reliable mean corrected radiocarbon date of A.D. 1100±70 (Willett and Fleming 1976, 143). Perhaps it is an attempt to have the Yemoo sculptures more closely aligned with those from Wunmonije.

The suggestion of broken sculptures being old when they are deposited (because of the fragmentary nature of the finds) should apply equally well to the 'Lafogido' metal casting, since it is missing its bottom half.

Thermoluminescence data on five Benin pieces were also reported in the same paper: two D-shaped bas-reliefs; the small 'Oni of Ife' figure; a Udo head; and a ram's head pendant mask (Willett and Fleming, 135-146). The pectoral D-shaped plaque was dated to A.D. 1600±35 and the other larger work to A.D. 1560±40. The similarities of both these pieces to other Ife, Benin and the 'Tsoede' group caused a reurging of Willett's 1973 suggestion (p.15):

> " It is possible that both represent an early tradition of casting in Benin, perhaps sharing a common ancestry with that of Ife, and that the Igueghae tradition refers not to the transfer of the technique of lost wax casting, as has generally been supposed, but more specifically to the casting of heads" (Willett and Fleming 1976,140-141).

All the Benin sculptures, except the Oni figure, are dated subsequent to the Portuguese advent in 1486. The only direct comparison that can be made is between the Udo and Ife heads, with the Udo work being about a century later. If the TL dates are inexplicably late the gap is widened. If the thermoluminescence dates are disregarded and a comparison is made, then the Ife heads move down into the eleventh or twelfth centuries and the Udo head, using Dark's analyses (1973,11), is placed in the seventeenth century. A difference approaching five hundred years results.

Benin radiocarbon dates, used herein, are the result of the 1961-1964 excavations conducted by Graham Connah at four different sites: Clerks' Quarters; City Wall; Usama; and the new museum. The data are conveniently listed both in Connah (1975,182) and Willett (1975,293).

The radiocarbon date from materials found in a well-like cistern at the Usama site, the legendary home of Oranmiyan, who came from Ife to found the present dynasty, is some five hundred years later than the run of dates from Orun Oba Ado (Usama radiocarbon date is A.D. 1500±105). It is apparent that the archaeologist submitted a Usama sample from what was probably the oldest section uncovered (Connah 1975,89-97).

The six radiocarbon dates from the Clerks' Quarters Site varied from A.D. 1180±105 to 1490±90. Cast 'bronze' objects were found in this excavation in the middle and late phases of cuttings II, III, and in a chronologically analogous context in cutting IV. Most of the plaque fragments came from the middle and late phases of cutting II and III, and one fragment from the superficial deposit of cutting I. Unfortunately the stratigraphic contexts of the cast 'bronze' finds were at the most two hundred and fifty years old, and probably deposited in either the eighteenth or nineteenth century (Connah 1975,139). The only fragment recognizable as belonging to a head was found in the late phase of cutting II. Figure 42.8 in Connah's text (1975,155) indicates that it was originally from a non-flanged roll-type head (Dark's type 2).

Found in the mass burial of cutting II were five heavy penannular objects of tin bronze (Connah 1975, Table 26) mixed in with charcoal; subsequently dated to A.D. 1180±105 and 1310±90. However, the first

nine feet of silt over the bones contained an assortment of sawn iroko wood. Double handled saws capable of cutting such hard timber were in use in the Mediterranean and Europe (Redhead 1975,220-221) by the thirteenth century, the approximate date of the findings. The presence of such findings in the silt above the bones indicates that a possible cautionary tag may have to be attached to the dates (Connah 1975,66,220). Three cast fragments found in cutting IV of the same site were analyzed as leaded brass (Connah,232). The evidence is slender but it does appear to reinforce Shaw's findings that bronze is early and brass is late. None of the Ife findings are tin bronze (Barker 1965, art.10; Werner and Willett 1975, table 7). The Ife sculptures are either leaded brasses or copper. Wherever the source of the Benin materials lay it was not from Ife, or the Ife sources of the late twelfth century.

The most obvious comparisons are the casting technique and the alloy contents of the respective traditions.

The cire-perdue casting technique was used in the production of Ife and Benin heads. The Ife pieces were cast with the head right side up, and the Benin pieces with the head upside down (Fagg and Willett 1962,368). In the present Benin process beeswax is used exclusively. Since the Ife tradition is virtually non-existent no comparison could be made. However, whatever casting does still exist at Ibadan and Abeokuta uses wax for modelling.

The casting practices of Ife and Benin in the production of full sculpture have been discussed by Williams (1974,188-210). He considered that the main difference between the two schools is the use of an internal armature in the Benin pieces, while the Ife cores were rigidized by some other method. There is no explanation of the Ife technique other than the negative one, about the absence of armatures and claws which were integral to Benin. The two examined Ife sculptures were the 'Lafogido', and the 'Seated Figure' from Tada.

The significant question is whether the method of casting heads represents a difference in technique or an accident by Iguegha when he was instructing the Benin artisans. Both Ife and Benin heads were cast with holes on top and bottom and the core was held fast to the investment through the use of horizontal pins. A cursory examination of the sculptures by the present writer indicates there may also have been differences in venting and spruing. The upside down technique is European, though probably not a European invention. The investment clay

matter mixture and the venting for the Ife copper heads would have to be different since copper is notorious for gas evolvement during casting. This is probably one of the reasons why a number of burn-ins had to be accomplished on the Tada seated figure. Also, copper requires a higher casting temperature than either brass or bronze. Whoever made the Ife pieces was able to successfully cast copper into very thin fairly complex shapes, whether this level of development was ever reached in Benin is unknown.

The brasses used in Ife and Benin have been analyzed and compared (Werner 1970,138-151; Barker 1965,art.10; Werner and Willett 1975,141-156; BM Rsch.Lab. 1979, unpublished; and others). Werner and Willett concluded that both brasses were manufactured using lead-rich calamine ores that could have been mined in the Harz region of Lower Saxony. They also concluded that 'at some time or other' Ife brass was used in Benin where copper higher in nickel and antimony but lower in arsenic was added. This Benin mixing resulted in a lower zinc, lead and arsenic, but a higher nickel and antimony content than the original Ife brasses.

The nickel and antimony content of the Benin bas-reliefs is characteristic of European materials of the fifteenth to seventeenth centuries (Werner 1972,405) and points to a possible European source for the reliefs. The same copper alloys do not match the Ife castings, but Werner found that the nickel content was consistent with tenth to thirteenth century European brasses and even bronzes (Werner and Willett 1975,154). Using the nickel content as a dating feature the authors urge that there exists a strong possibility that Ife brasses came from Europe in the twelfth and thirteenth centuries (Werner and Willett,154). Since the technique was introduced from Ife the earliest Benin pieces were therefore made from Ife materials which were later remelted, to which the aforesaid copper was added to produce the wall plaques (Werner and Willett,154).

It is quite logical to assume that a brass caster going to Benin for the first time would probably bring along his own materials. He would have familiarity with the casting and working properties of the metal and would prefer the familiar to the unfamiliar, even if he was assured by the Oba's messengers of the availability of castable yellow metal in Benin. There is every reason to believe a skilled artisan would take these elementary precautions against failure, especially if the alternatives could be rather grim.

Since there is no known plaque-casting tradition at Ife it could be safely assumed the first Benin works would emulate the parent.

> "If it is assumed that the first works in bronze made at Benin are those which are closest in style to those made at Ife, then Benin heads of type 1, heads with collar under the chin, qualify because of their stylized naturalism. It can be argued that with no established terra-cotta art and knowledge of firing, as at Ife, the Edo brass caster was restricted by the technique of casting he was learning and confined to some extent by the Ife aesthetic or idiom which was a part of the technique. The presence of stylized naturalism as an initial form of expression in the record of heads, which are characterized in general by rigidity and a high degree of stylization in formal representation, it is explained by assuming that the art of carving at Benin had for long been rigid and highly stylized but that these characteristics only gradually impressed themselves on the brass-caster confining his expression until it conformed to the Benin aesthetic."

> "The essential assumption, then, for arguments on the chronology and development of the styles of Benin memorial heads, is that those which look most like the classic Ife bronzes are the earliest in time and those which are least like them are the most recent" (Dark 1975,35).

Alloy contents of the Benin type 1 heads, the earliest according to Dark (1975,61) and those found in Ife should be comparable. Spectrographic analyses of two type 1 brass heads (III C 7658, III C 8527, Werner 1970,138-151) have zinc/lead (Zn/Pb) ratios of 4.9 and 7.6 and antimony/arsenic (Sb/As) ratios of 2.4 and 0.87. A later type 2, with the rolled collar (III C 8169, Werner,138-151) has a Zn/Pb of 5.4 and Sb/As of 3.2. The Ife brass heads have a median Zn/Pb of 0.95 and Sb/As of 0.46. The range of Zn/Pb and Sb/As ratios of the Ife heads varies from 1.6 to 0.67 and 1.38 to 0.29 respectively (see Table I for data).

A type 1 head in the British Museum (97.12-17.3) is a pure tin bronze with an alloy content that is reminiscent of the 'Tsoede' group of bronzes (see Appendix 2 for data).

> "So far as Benin is concerned, scrap metal could have been traded from Ife, and used in the sixteenth and seventeenth centuries with the addition of European copper of this period in the manufacture of certain rectangular plaques and other objects. However, since the technique of brass casting appears to have been introduced from Ife, the earliest pieces made in Benin were almost certainly made from the same alloy as used in Ife. It would seem most likely that it was the early works cast from this material, which were remelted to make the later plaques" (Werner and Willett 1975,154).

For the sake of argument it will be assumed that Werner and Willett are referring to the earliest Benin brass works. Subsequently it will be shown there were two Benin traditions, an earlier 'Bronze Period' and the later 'Brass Period'. In their analyses Werner and Willett (1975,144)

selected twelve Ife heads and the same number of Benin wall plaques and compared the maximum, minimum and mean values of the elements zinc, lead, nickel, arsenic and antimony. They chose to compare about 1.3% of the reliefs to 60% of the heads.

> "Although the zinc content in the two sets of analyses is very similar and the lead content in the Ife pieces is only slightly higher than that of the Benin plaques, the nickel content of the Ife pieces is only one-seventh and the antimony content is less than half of the corresponding figures for the Benin pieces. In contrast the arsenic content in the Ife heads is about three times as high as in the Benin plaques. Thus despite the striking correspondence in the main alloying elements nickel, arsenic and antimony indicate a clear separation in the two groups which cannot be overlooked.
>
> "Our first objective was to establish whether the unusually high lead content of the Ife alloys compared with the European calamine brass is to be explained by the addition of copper-lead manillas with a very high antimony content. Despite a lead content which sometimes exceeds 16% the Ife alloys have an antimony content which is too low to have been produced by the additions of manillas rich in lead and antimony.
>
> "Among the 12 Benin objects from which the average content of 0.5% antimony has been calculated there are only 3 plaques with antimony contents of 0.7 to 1.1% which could be explained by the addition of copper-lead-antimony manillas. In other cases the antimony content is conspicuously lower and fails to justify the assumption of the addition of lead-and antimony-rich manillas as the source of the high lead content of the Benin plaques" (Werner and Willett 1975,144).

The zinc and lead contents of the chosen examples are similar. However, when the median ratios of some ninety-one plaques (about 10% of the total) are calculated, Zn/Pb is greater than 1.6 and Sb/As is greater than 2.0, there is no correlation to the Ife brass heads (Zn/Pb of 0.95 and Sb/As of 0.46). To counter the total disagreement between the nickel, arsenic and antimony contents, the special copper materials had to be added by the Bini casters. In the early years of the sixteenth century the Benin preference regarding manillas changed from copper to brass (Ryder 1969,40). European copper of the twelfth through fourteenth century indicates a very low zinc content, in the neighborhood of some 0.23 percent (Werner 1976,447). If a similar copper was added to the remelted original Ife brass to make the plaques, the zinc content should decrease. Yet Werner and Willett (1975,142) report that the mean of the plaques used for comparison is 13.2%, and the Ife brasses is 12.5%.

Initial lead isotope studies on sixteen Nigerian 'bronzes' which included one Ife and six Benin works (of which two were wall plaques and two were early period heads) indicate that Igbo-Ukwu, Ife and Benin were separate traditions (Goucher et. als. 1976,130-131). The work was repeated, using the same sculptures with one or two additions (including a manilla), except that in the latter case the lead isotope ratios were somewhat varied, with greater dependence being placed upon ^{204}PB. This isotope was used since it is abundant and not known to have been created by any radioactive decay process (Goucher 1978,31). The same conclusions as the earlier experiments were reached (Goucher 1978, 34,77).

The earliest writer who found stylistic affinities between Ife and Benin was Leon Underwood in 1949. Underwood, a sculptor, writing in a highly romantic style, thought that the first Benin heads were archetypes with temporary classical refinements from Ife. These refinements were used empirically without

> " ... disturbing their proper pre-classical outlook on form. Bini artists, innocent of the terrors of intellectual refinements, got the lamb to lie down with the lion; in making use of what they felt in Ife style, with the same simple directness as they used when they felt nature. For their very simplicity of approach enabled them to do this without invoking the wrath of those demons of doubt in the intellectual's comparison between art and nature" (Underwood 1949,18).

> "Bini art is an early example of the failure of the intellect to restrict the expression of rational emotion. In Bini art we see this intimate clarity - as distinctly as the details of the distant view seen through a telescope. There was temporising with the measured classical style before the Bini rejected it. During this period of temporising, the Bini was near to the achievement of fusing two styles, but this was not to last" (Underwood 1949,V).

William Fagg (Elisofon and Fagg 1958) subsequently adapted the Underwood rhetoric and wedded it to the Oguola oral tradition. Similarities in form do exist between Ife and Benin and the Underwood thesis can be propounded between Benin and Greek art or between Benin and selected Romanesque or Carolingian shapes. The importation of the Ife aesthetic to Benin is criticized on stylistic grounds by Lawal (1977, 193-216). The main thrust of his argument is the wide difference in style between the early period Benin heads (Dark's type 1) and their Ife counterparts. This forces the viewer to accept the Benin sculpture as a 'degenerate form of Ife naturalism' (Lawal 1977,198).

In Rubin's 1970 review of Willett's text, Ife in the History of West African Sculpture he wrote:

> "We may accept, a priori, the premise that the bronzes of Ife and Benin are probably related but only with the following qualifications: monumental bronze sculpture of the level of technical proficiency demonstrated at Ife and Benin are more likely to be related than not, given that they are located within a single, more or less circumscribed area and are dated to a reasonably narrow span of time. These qualifications are prompted by a number of dramatic differences in style, form and detail between the bronzes of Ife and Benin" (Rubin 1970,351).

It has been argued, herein, that Ife and Benin were the product of different casting traditions and used different alloy materials. The lack of physical evidence and Ife oral traditions, except for one, in which the casters were abruptly killed for helping to perpetuate a fraud, also negate Ife as a casting site. These conclusions by no means obviate the connections between the two sets of finds through a common ancestor. What it does mean is that one has to look in other places in an effort to try and discover whatever links existed.

Chapter 2

The Nupe-Igala-Benin relationship

In 1965 Ryder suggested (125-37) that many of the conflicts associated with the origin of the present Benin dynasty and the introduction of cire-perdue casting to Benin could be resolved by ascribing more northerly origins. He considered the Nupe-Igala area straddling the Niger-Benue confluence as perhaps the key to such a reconsideration (Ryder, 37).

There are fundamental similarities between Igala and Yoruba cosmology and political structure. However, many of these could be used to tie most West African divine kingships to a common ancestral source. Igala oral traditions do mention a connection with Benin through a dissident son of one of the Oba's who left Benin to found the Igala dynasty (Boston 1969,29-43). Three Benin-made items: a large pectoral mask, a brass stool (akpa Ayagba), and an iron staff are symbols of Igala kingship (Boston 1969,39). There is a linguistic tie between Yoruba and Igala with over sixty percent of the words between the two being cognate. In glottochronological sequencing this would indicate a separation of 1,500-2,000 years (Boston,38).

The Nupe comprise several distinctive groups, all with a common language, and many elements of a common culture (Mason 1973,454). The Bini live mainly between the Gbake and Kaduna rivers with villages found as far west as Dasun and Kutigi. Prior to the middle of the nineteenth century the Bini are thought to have been a part of a confederacy of a dozen different villages with one being dominant (Mason,454). Mason thinks the Bini were never organized until 1857 into a single polity although they may have been unified by economic and religious bonds. The larger areas of Kutigi and Enagi are inhabited by the Benu, so-called because of the tradition of having emigrated from Bornu. To the west are the Kusopa and the Gwagba, while just north are the Gdbedegi who may have had a Yoruba affiliation. There are widespread stories of Yoruba occupation sometime in the past. Along the Niger and the Kaduna rivers live the Kede, the riverain Nupe. The Kede are almost exclusively riverain with probably the most clearcut identity of all the Nupe peoples (Mason, 455). On both sides of the Niger, in the western Kede area, live the Batacci, the people of the marsh (bata), who are primarily rice growers. On the south bank of the river are the Kupa and Cekpa. Additionally, there are many villages in central Nupe where the people just refer to themselves as 'Nupe'.

Until about 1830 the political situation is somewhat muddled. It does appear that two rival camps or lineages of the same family were vying for political power with yet another advocating a major jihad. A fourth contender, Muhammedu Dendo, a Fulani cleric, managed to play off the other three against one another and emerge victorious. After Dendo's death his sons contested for power and in 1855 the area fell under the control of a Hausa mercenary named Umaru. In 1857 at the village of Bida, in the Bini area, the sons defeated the Hausa and by agreeing on succession rights further bloodshed was avoided for the balance of the century (Mason 1973,453-457).

The earliest history of the Nupe revolves around 'Tsoede' or Edegi, the mythical founder of the kingdom, whose birth is placed in the middle of the fifteenth century (Nadel 1973,73). At this time the Nupe were a tributary of the Atta of Idah. The son of Atta Gara came hunting in Nupe country and fell in love with the chief of Nku's daughter with whom he lived several years until he was called to the throne at Idah. The child born of this union was Tsoede. Subsequently Tsoede went to his father's court and stayed for some thirty years. The Atta feeling death coming on advised Tsoede to flee to his own country where he would be king. As parting gifts he conferred upon his son various insignias of kingship which included a bronze canoe, the kakati or long trumpets, state drums with brass bells and the heavy iron fetters (Nadel, 73). Pursued by his half brothers Tsoede managed to reach Nku, the town of his maternal uncle, which he conquered and had himself installed as the ruler of all the Beni (Nupe) with the title Etsu, king. The conquests continued south into the lands of the Yoruba and north into the Ebe, Kamberi and Kamuku areas.

Tsoede brought the Nupe emblems of magic, royal insignia and the arts of brass-casting and canoe making (Nadel,74). Nadel suggested that since Benin was once the political overlord of Idah, several of the Jebba and Tada figures which were cast by the cire-perdue process, a technique unknown in Nupe, may have a Benin provenance. The same would be true of the quadrangular bells typical of Benin found on state drums along the Niger (Nadel,75).

Thurstan Shaw has suggested that these Jebba, Tada, and Giragi sculptures were not brought by Tsoede, and deposited in the various areas in which they were subsequently found as emblems of Tsoede's authority, but rather marked control or toll points of Yoruba trade (1973,237). He further commented: if the bronzes were left behind after the Nupe conquest

of Old Oyo they would be spoils of war and thereafter claimed by the Nupe (Shaw,237). Lawal, cited by Shaw, seems to think Nupe warriors captured the pieces from Old Oyo and subsequently deposited them in the areas sometime in the sixteenth century.

Recently Lawal (1977,193-216) jumped into the fray with several suggestions concerning the Ife-Benin relationship. Using the Benin-Idah war (ca. 1515-1516) as a springboard, Lawal speculated whether the Idah of the Tsoede legend and the kingdom of the 'Ogane' were not identical. Further, the facial cheek scarification marks seen on several of the Benin sculptures probably do not indicate Benin personages.

Lawal considered similarities between the ram motif seen on the pendant plaque and the chest pendant worn by the Nupe 'Gara' figure as providing a possible link to connect the Idah of the Tsoede period with the Ogane tradition. The maltese cross found on both the 'Gara' and Benin sculptures may well be another connecting link. Also the cat's whisker facial marks are identified in Benin and Ife as belonging to the inhabitants of the Niger-Benue confluence (Lawal 1977,209-210).

The question of Yoruba origins has been the subject of controversy (Law 1973,207-222). All of the Yoruba kingdoms and the non-Yoruba kingship of Benin claim a common origin from Ile-Ife, through Oduduwa the first king or Oni. Different versions are known of how Oduduwa came to Ife. Some say that Ife is the site of the creation from which mankind dispersed over the earth. Oduduwa descended from heaven on a chain and created the dry land. Others represent the founder as an immigrant from another area outside Yorubaland. The most popular version, which has almost achieved official recognition, is Johnson's account of migration from 'mecca' (Johnson 1973,3).

During Oduduwa's lifetime or thereafter his sons and grandsons migrated from Ile-Ife to found other kingdoms. The number of such kingdoms vary from six to sixteen but almost all the versions name Oyo, Ketu and Benin among the original. In several of the derivative kingdoms this link was given institutional expression, and among the Bini parts of the deceased Oba were actually or symbolically sent to Ife for burial. The primary aspect of the connection was to obtain permission or validation of the rights of succession which had taken place in the derivative kingdom.

The validity of the spiritual overlord residing in Ile-Ife tradition has been hardened by continuous usage into something akin to the official history of the Yoruba. Traditions exist which counter this paramountcy

of the Oni. Whether, these are of more recent vintage to negate the Ife tradition or older (but have been drowned by the Ife publicists) is still somewhat conjectural. One of the traditions asserts that the Oni is not descended from any of Oduduwa's children by his favorite wife, Omonide, but from another wife. Upon Oduduwa's death the son who became Oni was given a broom to keep his father's grave clean. In another version the Oni was said to have been a slave in Oduduwa's household who was left to look after the palace when the sons had dispersed to found their own kingdoms. In yet another slave tale the chiefs were advised by an oracle to choose a successor from the first man they met. It turned out to be a slave who had just escaped being made into a sacrifice. As evidence of the slave beginnings of the Oni kingship, the proponents of these traditions point out that Oni is derived from Omo Oluwo or Oluwo Ni, meaning 'he is the son of a sacrifice' (Law 1973,212-213).

A most interesting twist is the Benin tradition. Here Oduduwa was the Benin prince known as Ekaladerhan, who was banished by his father Ogiso Owodo. The prince initially went to live at Ughoton. The Ogiso realizing the falsity of the accusation begged his son to return. Ekaladerhan, embittered by the experience, refused, and in order to be left in peace he migrated to a place far from his ancestral home. The king's search parties eventually located the son at Uhe (Ile-Ife).

The prince was greeted with curiosity by the Ife residents because they could not understand the Bini language. Every time they would try to converse with Ekaladerhan he would keep repeating 'Idoduwa' a Bini word signifying grief, which was later corrupted by the Yorubas to 'Oduduwa'.

The Ogiso's messengers requested the prince to return to Benin and accept the kingship upon his father's death. He refused on account of age and because he had already become king at Ife. Subsequently it was decided Prince Oranmiyan should go in his place (Aimiuwu 1971,86-87).

The same type of rebuttal traditions exist between Ile-Ife and Old Oyo. Oranmiyan in some versions the grandson of Oduduwa and in others the youngest son, is generally credited as being the founder of Old Oyo. The reason for the primacy of the Alafin of Oyo is that one of his titles, Onile, means 'owner of the land' and Oranmiyan having secured the ownership required his brothers to pay tribute for permission to live on it. In another tale Oranmiyan even though the youngest son was the most courageous and virtuous and he was chosen because he was the son born after Oduduwa became king (Law 1973,215).

Conflicting claims of overlordship between Ife and Oyo were 'ingeniously reconciled' by the British in the first years of their administration by declaring the Alafin as the political head and the Oni as the religious head of the Yorubas (Law,216). Law stresses that this King-Archbishop of Canterbury relationship is not based upon any real evidence. It is an attempt to reconcile conflicting versions and somehow pacify both rulers.

Traditions of probably recent vintage proclaim the early suzerainty of Oyo over Benin. These tales may have provided the basis for the elders of Benin sending to the Oni of Ife for a king and the Oni sending Oranyan (Oranmiyan). The logical derivation of the Bini tradition makes one wonder whether the story reported by Egharevba is not Yoruba inspired and simply a nineteenth or twentieth century transposition into Bini mythology. Law suggests in lieu of textual material one simply has a number of variations of one basic tradition recorded during the same time period, from ca. 1840 on (Law 1973,221).

Yoruba traditions recount how the Yoruba believe themselves to have descended from Lamurudu, one of the kings of Mecca, whose son Oduduwa was the actual founder of the Yoruba in west Africa (Johnson 1973,3). Oranyan (Oranmiyan), of Benin fame, attempted an expedition against Mecca to avenge his great-grandfather's death, but was repulsed by the Tapas (Nupe) at the Niger. Forced to retreat, Oranmiyan consulted with the king of Ibariba and was told to follow the trail of a charmed boa constrictor. Wherever the snake stopped for seven days and then disappeared he was to found a city. The phenomena occurred at the site which became Old Oyo.

Oranmiyan remained and the city prospered. Subsequently he married a Nupe princess and Sango was born from this union. Tradition mentions two sons, Ajaku and Sango. Whether they were both born of this particular union is never stated. There was communication between Ile-Ife and Old Oyo, and Oranmiyan often sent to Adimu (the keeper of the royal treasures) for whatever he required for the new city (Johnson 1973,11). Either the king died in the Oyo area or subsequently returned to Ife to rule as the Oni. The seat of government was moved in Sango's reign to Ile-Oyo (Old Oyo).

The king's two sons, Ajaka and Sango, subsequently ruled as kings of Oyo. Sango died without issue and Ajaka's son, 'Aganju' became the sixth king. It was during this reign that the palace at Oyo was greatly beautified with piazzas in front and back, and brazen posts. Aganju is also credited with decorating the palace on state occasions with wall

hangings. The Ilorin tradition relates how in the nineteenth century the palace at Oyo was destroyed by fire which consumed most of the treasures accumulated by the king's ancestors. The then reigning Oyo king died from grief and was succeeded by Prince Oleuwu, who was forced to pay homage to the Emir of Ilorin. Realizing there could not be two overlords at Old Oyo the Emir ordered the city to be put to the sack so that nothing would exist in Oyo which was not already at Ilorin. It was during this incident that the one hundred brazen posts of Aganju were removed (Johnson 1973,155,259).

Lawal has pointed out the abortive attempt by Oranmiyan to return to Mecca may be an indication the Yoruba once lived beyond the Niger and had common antecedents with the Igala. Baston's work somewhat confirms this suggestion. Lawal also speculated about another Ife which exists near Idah. The chief bears the title 'Onu' and one of the most important deities is 'Olojo', both very remindful of the Ife Yoruba. The similarities between the two Ifes present the intriguing possibility that both the Yoruba and the Igala emigrated to their present homes from an area beyond the Benue.

The 'brazen posts' may well refer to cire-perdue wall reliefs such as those which covered the palace at Benin. There are close parallels between the two cities, Oyo and Benin, concerning Oranmiyan and the subsequent introduction of brass casting into Oyo (Ryder 1965,34).

In 1965 Ryder commented:

> "One line of dynastic tradition leads in turn from the Igala capital at Idah to the divine kingship of the Jukun which bore a number of striking resemblances to that of Benin. In both the king was served by boys who always went naked; the rites of the kings included prayers and libations to deified ancestors at sunrise; they were supposed not to need food or drink, and therefore took their meals in solitude. Kororofa the Jukun capital, whose site is still unknown is said to have been a great centre of brass casting. The few pieces of Jukun brass-work at present known bear some resemblance to Benin work. In particular a number of pectorals are similar to those worn at the waist in Benin, both in form and in the recurrence of a fish-tailed figure motif. The large brass disc sometimes worn on the head of the Jukun king and sometimes used as a gong may have had affinities with the discs on the head-dresses of the standing male figures at Jebba and Tada. Some weight may also be given to the fairly certain knowledge that the Jukun state gained great power in a large area between the Niger and Benue in the course of the fifteenth century" (Ryder 1965,34-35).

At one time between the fifteenth and seventeenth centuries the Jukun kingdom probably controlled the middle belt of Nigeria. It is thought to have extended from the twelfth meridian to the Niger, then south to the cross-river and north to the borders of Bornu and portions of the central Hausa states. Included under its aegis were the entire kingdom of Doma, the Igbirri kingdom of Panda and the dominions controlled by the king of Idah (Ruxton 1907,378). The parallels between the Jukun and Benin divine kingships (Ryder 1965,34-35; Rubin 1969,11-36) plus possible common origins are manifested in a similar morphology in the sculpture of the two areas. Rubin suspects the Ogane tradition does not refer to Ife but to Kororofa which is also associated with the name of a ruined city located in the Jukun area (Rubin 1970,351).

All of the existing hypotheses based upon cultural, economic, and political evidence of one sort or another indicate growth in West Africa resulting from migrations from the fringes of the Sahara into the Sudan and then into Guinea (Fage 1978,70; Jeffreys 1951,87-91). Scholars are generally agreed that brass-casting also spread from the northern areas of Africa, but there is no agreement from whence it came and whether there were multiple introductions and the dates of these events.

The chemical analyses of at least nine true bronzes found in Benin which include (Figs.EB:1,2, 3; IU:1) face masks and bells, Dark type 1 head, full sculptures, and other works (see Table I, Appendix 2) when compared to the 'Tsoede' group indicate a probable connection in alloy materials (see also Shaw 1969,98; Werner 1970,138-151; Willett 1973,13-14). If the heavy smithed penannular bracelets uncovered by Connah in the mass burial portion of the Clerks' Quarters site at Benin, are also compared the similarities in alloy chemistry become more evident (see Shaw 1969,94,97; Connah 1975,182,352; and Table I herein for data).

The thermoluminescence dating of the bronze 'Gara' and the copper 'Seated Figure', A.D. 1365±55 and A.D. 1325±60 (Willett and Fleming 1976, 138-142) are well within the Bradbury modification for the reign of Oba Oguola. In addition the dates are comparable with the radiocarbon dates determined from charcoal intermixed with the above bracelets, A.D. 1180±105 and A.D. 1310±90.

Lead isotope studies indicate the Benin plus group, composed of Owo, Udo, Lower Niger and Benin, were made from brasses which contained lead from one single source. The Igbo-Ukwu and Ife castings displayed different isotopic ratio characteristics to warrant the conclusion they

★ pp.163, 165, 165

★ Vide, Vol. II

were separate casting traditions (Goucher et al. 1976,130; Goucher 1978, 1-89).

The physical data also point to the probable connection between the Niger area where the 'Tsoede' bronzes were found and Benin. It can also be concluded Benin had two metalworking traditions. The first or 'Bronze Period' which ended prior to or during the reign of Ewuare and the second or 'Brass Period' which began in the time of Esigie. This is discussed again in a subsequent section. As an ancillary conclusion the appellation of the 'Lower Niger Industries' is incorrect as these were the early 'Bronze Period' castings.

The theories of the origin of the 'Tsoede' bronzes are varied. Thompson (1970,11) suggested one should consider Ile-Oyo as the origin, since the bronzes could have been removed to their present location during the nineteenth century wars. Lawal (1977,206-213) also considered the probable Ile-Oyo origin. An earlier version of the Lawal paper was cited in Shaw's work, without comment (1973,37) where he speculated about the use of the bronzes as possible Yoruba trade markers. Fagg (1970) and Willett (1967,275) favor the Igala area, although there is no evidence of an ancient casting tradition. Even Owo (Frazer 1975, 30-35) has been argued as the production site. This latter conclusion is that Owo was the only place where there was the proper wedding of style and technology to produce the Gara group of the 'Tsoede' bronzes. Benin was disqualified on the grounds of 'style', all in the face of the evidence that bronze casting was introduced into Owo from Benin and there are strong cultural traits between the two (Frazer 1975,33-34). When one adds the physical data to this then the entire Owo hypothesis of Tsoede bronze origins must be rejected.

The overwhelming weight of argument postulates a northern source for both metal and the cire-perdue casting process (Cline 1937,88; Hefel 1943,1-87; Sölken 1954,809-924; Shaw 1970,284-285; Rubin 1970, 348-354). The agreement of the Benin and Tsoede data and the Benin, 'Tsoede' and Jukun morphology show a connection between all three. If this is taken along with the weight of argument concerning the introduction of divine kingship and brass casting into Guinea, then it must also be concluded that the origins of Benin cire-perdue sculpture also came from that direction.

Chapter 3

Igbo-Ukwu

The only known significant quantity of earlier bronze castings were excavated at Igbo-Ukwu, south of Idah and east of the Niger river. Two of the radiocarbon dates from the site have an eighth to eleventh century date, and one indicates a mid-fourteenth to mid-fifteenth century date (Shaw 1975,507).

The casting technique of the Igbo-Ukwu bronzes is thought to be different from Benin, although both traditions used the cire-perdue process. Igbo, because of the fineness of detail used vegetable matter while the Benin artisan did his detailed modelling with wax. The present writer's experience indicates that this alleged difference may not be correct. If beeswax is continuously re-used the microcrystalline structure would be modified and there is probably no reason why as fine a detailed casting could not be fabricated. In the modern era wax was initially used to take the impressions in order to fabricate false teeth. One could hardly imagine a more detailed impression being needed. In the African vein the Akan produced exquisitely modelled goldweights using beeswax as the investment medium.

Neaher's study of the Nigerian bronze bells (1979,43-47) suggests there may be a southeastern 'corpus of bronzes' typified by the bell and distinguishable from their southwestern counterparts. The southeastern bells tend to fall into three groups: the small waisted type, conical in shape with a flared lower rim and approximately 15 cms. high; an inverted tulip shape, also about 15 cms. high, thin cast and with a looped handle; the larger tubular bells, of elliptical cross-section and some 23 cms. high (Neaher 1979,43). The 'tulip' variety are commonly seen in the Benin corpus, both being worn by the figures on the plaques and as separate items. The chemical analysis of such a bell (fig.IU-1 p.163) shows that it is a tin bronze of a different composition from what would be expected from Igbo-Ukwu.

The radiocarbon dates reported by Professor Shaw from the Igbo-Ukwu excavations appear to several scholars to be inconsistent with the finds and known trade routes (Oliver and Fagan 1975,90; Lawal 1972,72-97; 1972, 313-321; 1973,1-8; Posnansky 1973,1-14). Northrup takes a somewhat middle position when he compares the dates from the three excavated Igbo-Ukwu sites. The ninth-century dates are associated with a disposal

pit which are placed by Shaw in the first chronological sequence, and the other two sites fall somewhat later. The 'somewhat later' is explained through the copper working techniques, iron draw-plates and beads, found at the sites, pointing towards the fifteenth century. According to Northrup the exact time-span of the sites is uncertain but he agrees that the Igbo finds can be dated to the centuries before the arrival of the Portuguese on the coast (Northrup 1972,218). Shaw has written a rebuttal paper (1975,503-517) but the opinions are still divided as to the dates of the Igbo-Ukwu culture and its significance in the scheme of southern Nigerian brass-casting.

The importance of Igbo-Ukwu to Benin is definitive evidence of long-distance overland trade routes which existed into southern Nigeria prior to the Portuguese advent. Northrup agrees there is little information to formulate the exact patterns of the routes from contemporary evidence. He attempts a reconstruction by extrapolating backwards from mid-nineteenth century patterns reported by Europeans in the area (Northrup,221). One of the trade staples from the fourteenth through seventeenth centuries was salt. This was traded from the Sahara to the Sudan and from the coast to the forest. Pereira noticed the vigorous salt exchange between the eastern Niger Delta and the hinterland (Northrup 1972,220; Kimble 1937,132). Perhaps the most famous market in the nineteenth century was the one at the Igala bank near Asaba. It seemed to be a meeting place for the goods coming north from the delta and those going south from the hinterland. Benin traders are reported to have used the market (Northrup,222). Overall Northrup makes a good case for overland trade existing prior to the European advent with the Niger providing the necessary adjunct which made all this possible. The quantities and exact nature of the goods which Benin traders managed to obtain can only be hypothesized, but it is probable copper and/or copper alloy goods were among the trade items.

The majority of the Igbo-Ukwu metal finds are leaded bronzes of a composition not unlike Greek coins of the first century B.C. (Caley 1939,106). The most serious obstacle in formulating any relationship at present between the two sites are the significant differences in chemical composition and lead isotope data. The possibility cannot be discounted because of morphological or stylistic similarities (see Shaw 1970, vol.II pls.264-268, 341-342, 348) which do exist.

Chapter 4

Possible sources of Benin brass

Some four-hundred Indian, East-Turkestan and Chinese statuary materials have been analyzed by Werner (1972,175-193). The older alloys were mainly tin-bronzes, but in the fourteenth-fifteenth century there was a shift towards brass with marked increases in zinc and the commensurate decrease in tin. The only exception is found in western and northwestern India where copper alloys with a zinc content of fifteen percent or greater are known to have existed between the seventh to twelfth centuries (Werner 1972,138).

Copper alloy statuary metal from North and South India, Siam and Java of the fifteenth to seventeenth centuries generally has zinc contents comparable to that found in the Benin plaques (Werner 175,193). Chinese and East Turkestan materials from the twelfth through sixteenth centuries averaged zinc contents of about thirty percent (Werner,138). Significant increases in zinc, between twenty to thirty percent of the total alloy content, are seen in Javanese, Burmese, Siamese and North Indian alloys in the seventeenth to nineteenth centuries. During this period south Indian brass zinc content was approximately halved (Werner, 119). It is possible that Asian tin-bronzes and later brasses may have been used in Africa.

The Gulf of Guinea was reached by the Portuguese in the early 1440s. In 1444 the first black slaves reached the town of Lagos in Portugal, and in 1447 the gold cruzado was created in Portugal. Such trade usually took place at the mouth of rivers or other designated coastal areas for brightly coloured fabrics, copper bracelets or bowls, cloth, wheat and horses (Braudel 1972,Vol.I,469). As European trade moved steadily eastward these same staples remained in the European itineraries. It is quite possible European goods reached Benin during the mid-fifteenth century or shortly thereafter (Fage 1962,343-347; Egharevba 1968,17).

As the Portuguese seaborne trade opened up the Guinea coast to foreign goods and influence it would seem more logical that Benin turned more and more to the coastal regions to supply its needs. Materials coming overland would have had to pass through many brass using sites and a supply of such metal could never be assured. The ascendency of Europe as the brass manufacturing center in the fifteenth century (von Bibra 1869,194) and the simultaneous increase in west African trade would

mitigate the need for Asian sources. Perhaps the decrease in zinc alloy content of south Indian brasses was as the result of Europe attempting to stem the flow of gold and silver to the east, by paying with trade goods (Braudel 1972,vol.I,462-466; Boxer 1977,215).

In the fourteenth century the greater European demand for gold caused a commensurate increase in traffic on the overland route from Jenne, on the Niger, to the lower Guinea coast. The route passed through Bobo-Dioulasso to the Begho (Brong-Ahafo) region of Ghana, located just north of the tropical forest area. The second half of the journey went either through Wam to Twifo and down to Elmina, or via Wenchi, Kumassi, Assin and the coast, near Cape Coast (Wilks 1962,337-342). Subsequently, the goods went east or west with some trade items probably ending in the Benin area (Fage 1962,343-347). This route provided a major outlet for southern goods such as kola, slaves and gold which were exchanged for the northern products of cloth and brasswares. The quantities of these items which eventually were traded with the Bini, prior to the inauguration of the seaborne trade in the late fifteenth century, is unknown. The use of brass by the Oyo Yoruba, Jukun, Nupe and Akan among others again probably precluded this route from serving as a major source of metal for the Benin casters. It is possible that Benin traders did go north to secure supplies.

Monod (1964,1393-1402) reported finding the remains of an abandoned camel caravan at Ma'den Ijafen in the Majabat al-Koubra of western Mauritania, which had as part of its cargo some two thousand brass rods. The wrappings were radiocarbon dated to 1090±108 and 1165±110 (Flight 1973,544). Chemical analyses of two of the bars indicated a Zn/Pb of 41.6 to 60.0 and Sb/As of about 0.07 and nickel (Ni) of 0.13 (Werner and Willett 1975,171). There does not seem to be any correlation between the Majabat al-Koubra finds and any known Nigerian brasses. The very high arsenic content of over one percent, with corresponding low lead, indicates what one would expect in a late bronze age material (Tylecote 1962,55; Caley 1939,106). There were trade routes to Gao and Timbuctoo (Levtzion 1973,138-139) during the period of A.D. 1000-1500 in which pretty much the same goods were traded. One interesting trade entrepot of the period was Takedda, where there were known commercial deposits of copper. A further very brief discussion of routes is found in other sections dealing with horses and beads.

It has always been assumed that the manillas, so well known throughout west Africa, were the probable source of Benin alloy material. Basically, the modern manilla is a copper-lead alloy varying from twenty-five to thirty percent lead and containing less than one percent each of arsenic, antimony, tin, zinc and nickel. Others contained about eight percent tin with traces of gold and silver, and still others have been reported with approximately six percent antimony and traces of arsenic and iron (Grey 1951,53-54; Amogu 1952, 134-139). Some eight or nine manillas analyzed by Werner (1976,448) were all copper-lead alloys with a lead content varying between 24.7-36.8 percent, and antimony between 2.8-6.3 percent. The only consistent alloy material is lead which most probably was added to increase the manilla's weight so that the recipient could feel he was receiving a great deal of metal for whatever he was trading, and to cheapen the price. Goucher (1978,44) reported that the lead isotope analysis of a manilla placed it in the center of the Benin plus cluster. She concluded from this that it may have served as a source of metal used in Benin. Unfortunately she did not present either a chemical analysis of the work or any documentation to back up her conclusion. All that the lead isotope data seem to indicate is that the same lead source was used to fabricate the manilla as the Benin brass. This could mean they both were produced in Europe (or elsewhere) and not that manillas served as casting metal for the Bini artisan.

Benin's preference for the copper manilla changed during the beginning years of the sixteenth century (Ryder 1969,40), though some eight thousand copper pieces were sent to Ughoton in 1505 (Ryder 1969,40). Between 1511-1522 the Portuguese factor at Elmina never had less than 302,920 brass manillas on hand. The factor at Axim from the first of May 1505 until the thirtieth of September 1506 had an inventory of 67,094 brass manillas (Strieder 1932,250). Dapper in his 1671 version mentioned grey manillas, which either had a grey color or when the ends were fractured they appeared grey. Perhaps the Dutch were resorting to something similar to the old Chinese trick of making castings look 'bronzey' by placing them in strong boiling tea. No early type manillas have survived which could be analyzed as a possible source for Benin brasses. What is available indicates that the only similarity between the known manillas and brass perhaps was the color (Jungwirth 1968,241-243; von Luschan 1919,507-508).

The early history of the manilla is still dimly perceived and it is thought that its use preceded the Portuguese, who supplied only a continuing need (Marquart 1913,49). The smithed bracelets uncovered by Connah in Benin may have been the early type of manilla, and if this is true, it does indicate usage prior to 1486. Copper ornaments were worn in the sixteenth century by the Mpongwe near the Gabon estuary (Martin 1970,143). The source of the copper was considered to have been in the Niari basin, north of the lower Zaire (see also Shaw 1975,513). The Niari basin is the central African location which best fits the Benin cluster of lead isotopes (Goucher 1978,42). Vansina believes the necessary long-distance trade routes did not exist prior to the coming of the Portuguese, although there was trade on a regional basis (Vansina 1962,375-390). Shaw mentioned this southern source of copper in connection with Igbo-Ukwu's leaded bronzes. Whether tin-bronzes or leaded brasses or even copper, in sufficient quantities, travelled so far northwest prior to European contact can only be guessed at. It is doubtful that Kongo technology was sufficiently advanced to manufacture brass with purposeful additions of lead such as that which is found in the Benin materials.

The analyses reported by LeBeuf of the Sao culture materials from the Lake Chad region is such a mixture of zinc, lead and tin alloys that one cannot make any sort of consistent comparison (LeBeuf 1950,186-187; 1962,3).

The only two commercial copper deposits known in sub-Saharan west Africa which possibly could have satisfied the metal hunger are the deposits at Dkra (Nioro, Mali) and Takedda (Azelick, Niger). The excavations at Akoujt, Mouritania indicate that copper smelting took place as early as B.C. 570-400 (Herbert 1973,179-180). However, if it is believed that limited quantities were extracted and it declined in importance during early historical times. One of the reasons given was the depletion of timber supplies (Herbert,180). Shaw (1970,271-283) and Herbert (1973,180) agree that the greatest supply of copper came into the Guinea area prior to the Europeans through the various overland routes from north Africa (Shaw 1970,271-283; Levtzion 1973,136-152; Afigbo 1977,119-139).

The present writer has been able to locate two references to brass manufacture in Africa: one concerns a nineteenth century account of smelting in North Africa (el Tounsyin 1851) and the other described the melting of copper and zinc in crucibles for manufacturing brass wristlets among the Mossi (Mangin 1914,718-719). Bronze or a similar material is reported from the Congo (Sundstrom 1965,223), but this may well have been brought or manufactured subsequent to the European presence. There is no

definitive evidence of a brass smelting industry in either west or central Africa during the time periods involved. One of the probable sources which has not been investigated are the monophysite kingdoms in Nubia. The literature is rife with information of smiths and casters using imported brass and copper to fabricate a wide variety of items. Sundstrom in his text, Trade of Guinea (1965), has listed literally hundreds of references to the use of imported metal alloys.

The possibility does exist of copper ores being found with sufficient quantities of zinc so that when the ore is smelted brass would result. This requires sophisticated technology to reduce the malachite which contains zinc oxide to the necessary copper-zinc alloy. Once the zinc is reduced by the granulated charcoal, the reducing atmosphere must continue or the volatile zinc will recombine with oxygen and be lost. William Fagg has suggested that such an Orichalcum mine did exist in the southern Sahara (1963,35). Tessalit, in northern Mali produced a malachite ore with varying percentages of zinc oxide (4.5-27 percent). Malachite is a green stone which possibly could have had more value as jewellery than as an ore material (Mauny 1951,175). It has been suggested that a possible source of materials for the Ife heads was the Takedda ores, but this would mean the heads may not have been cast after the fourteenth century, the date of abandonment of the mine. All of the ores are radioactive and it would be interesting to check the Ife pieces (Mauny 1962,393-395).

There are scattered reports of copper in Nigeria. Burton (1863,133) mentioned that copper is to be found in the mountains to the east of Abeokuta. LeBeuf (1964,243) averred that Nigerian bronze used tin from the Lake Chad deposits and mixed with copper from other sources. The most recent is the statement by a miner who claimed tin and copper were present in the Abakaliki mines (Shaw 1975,513). The discovery of copper would only partially solve the problem. The brass and bronze smelting sites still have to be uncovered and most especially those which used purposeful additions of lead.

The Benin cire-perdue wall reliefs are overwhelmingly leaded brasses. The only area which produced such a purposeful alloy during the fifteenth through nineteenth centuries and had consistent trade volumes with the Guinea coast and Benin was Europe.

Metallurgy

Prior to the eighteenth century brass was manufactured in Europe by the cementation technique. The zinc ore, usually a carbonate ($ZnCO_3$) was mixed with granulated copper and charcoal. The entire mass was heated to between 950 and 1000 degrees centigrade (copper melts at 1085°C.). The carbonate was reduced and the pure zinc vapour diffused into the copper granules. Subsequently the temperature was slightly raised and the entire copper mass melted.

The two step process was necessary as zinc melts at 420°C. and boils or vapourizes at 950°C. Unless a reducing element such as charcoal is added the zinc would boil, re-absorb oxygen, and the resultant zinc oxide would be lost. In the modern process a zinc blende or sulphide is roasted to an oxide, which is then smelted in a closed vessel with coke to reduce it to elemental zinc. The top of the closed smelting retort is kept slightly above the melting point of zinc so the metal can be collected. In the final step the elements are mixed together in whatever proportions are needed to effect the final composition (Tylecote 1962,53). The direct reduction process was known in China by the fourteenth century and it was not until some four hundred years later that it began to be used in Europe.

The most common purposeful addition is lead (Pb) which increases casting fluidity and imparts hardness. Along with the desirable property of hardness is the concomitant brittleness. This may be part of the reason why so many Benin sculptures have fractured surfaces. Lead alloying started in the late Bronze age of Europe as a replacement for arsenic (As) which is also a hardening agent. The disadvantage to arsenic was its low sublimation point, the temperature at which the phase is transformed directly from the solid to the gas (615°C.). Tin (Sn) is another

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Note: Throughout this work the classification of cast copper alloys listed on pp.512-514, Table 24-1, (Classification of Cast Copper Base Alloys), in A. Butts, Copper - The Metal, Its Alloys and Compounds, American Chemical Society, New York, 1954 is exclusively used. Therefore when reference is made to 'leaded brasses' it will signify either: 'leaded red brass' containing 2-8% zinc; tin less than 6% and usually less than zinc, and lead over 0.5%; or 'leaded semi-red brass' which is the same as red brass except for an increased lead which is now over 0.5%; or 'leaded yellow brass' with a zinc over 17%, tin less than 6%, under 2% total aluminium, manganese, nickel, iron and silicon, and less than 0.5% lead.

Throughout the proper name for the various chemical elements and compounds are used interchangeably with their known and accepted chemical symbols.

purposeful alloying element which also imparts casting fluidity and some hardness. If one examines the binary phase equilibrium diagrams of copper-lead, copper-tin and copper-zinc, it is readily noticed that the addition of any of these elements to copper usually lowers the melting point of the alloy and less heat is required when the raw brass is remelted for casting purposes.

Tylecote (1962,57) in his Table 21 lists the principal alloying elements of four fourteenth and fifteenth and one thirteenth century brass. Zinc increases in an inverse proportion to age from a low of 14.4% to a high of 29.5%. Modern day brasses come in a variety of alloy contents with zinc hovering around the eutectic composition of forty percent. By the fourteenth century in England there were signs of a standard brass casting alloy, as tin was becoming too expensive and the gold-like colour imparted by the zinc made brass more useful in memorial castings (Tylecote,57).

The approach used in trying to determine ore sources of copper alloy sculpture is to consider the relative proportions of elements that are as reducible or oxidisable as the copper itself. They will appear in the smelted copper in the same relative proportions as in the ore and will be little affected by slight differences in smelting technique (Tylecote 1962,24).

Werner (Werner and Willett 1975,148-149) used the findings of Marechal's earlier experiment of brass prepared by the calamine technique to conclude that the zinc to lead ratio remains nearly constant between the zinc ore, usually found in combination with lead ores, and the final copper-alloy product. Lead is usually a purposeful addition and would mask the original Zn/Pb ratios. Additionally there is the problem due to the high specific gravity of lead which causes the element to agglomerate or globulate within the alloy, and sampling must be taken from a sufficiently large area to ensure a representative value. Zn/Pb is a very poor diagnostic tool to use in trying to determine ore sources or date of manufacture. However, it should be a fairly sound technique for comparative purposes to known brass which has been dated. Arsenic and antimony act similarly in that they are likely to be present in the final alloy in the same ratio as in the ore (Tylecote 1962,24,41).

The two ratios, Zn/Pb, Sb/As, have been used herein in the following manner: the Benin wall plaque ratios are compared to other Nigerian sculptures that are discussed, and to European statuary which has been dated through standard art historical techniques. Only those European

works which display zinc, lead, tin, nickel, antimony and arsenic within the same range as the Benin sculptures have been used. The dating of the European pieces is accepted. The Benin ratios were plotted on semi-logarithmic paper, to cut down plot scatter, and the European materials which met the above criteria are also plotted on the same graph as time bands. The Benin sculptures which fall into a particular time band are assumed to be made from brass of that period.

It is possible that lead was added to the brass at Benin during the melting process. However, the close grouping of the great majority of the plaques indicates this was not done or it had to be done on a consistent basis over a period of at least a century. Another possible difficulty with using such a simplistic approach is the remelting problem. Assume, for argument's sake, a fifteenth century European brass was re-used in the eighteenth century. The ratios could remain the same and the plot would not indicate the later date. What the plot would indicate is the possibility that earlier brass was remelted at a later date. Mechanical devices such as the above ratios cannot be used blindly and are only to be considered as corroborative evidence or indicators. If various brasses with different ratios were remelted, the ratios would shift and most probably a third set of numbers would emerge. These, conceivably, could be within the range of the earlier Benin materials and would be so indicated on the plot. Such graphs are only comparative tools which indicate through visual means whether one is possibly looking in the correct area and in the correct time periods.

Perhaps lead isotope ratios should be determined from dated European and other statuary and then compared to Benin ratios. This type of information when used with the chemical element data could help provide linkage indices between areas at a particular time.

In the instant plot (Graph 1) the close grouping of the Benin wall plaques and their falling within the fifteenth to sixteenth century time band does indicate the probable lower limit of the beginning of the production of bas-reliefs. A discontinuity occurs within the Benin plaques and this is mirrored in the European brasses (Graph 1). Whether this is coincidental or whether an error was made in drawing the European time bands cannot be determined for the present, because of the insufficiency of the European data within the time periods considered. It should also be noticed that the Benin suclptures which have been dated to the late seventeenth century and subsequently have a different alloy content from the rectangular plaques. These later type Oba memorial heads and altar and shrine-works indicate a zinc content in the neighborhood of 25%, with

commensurate decreases in tin and antimony. Lead content also decreases but not as dramatically as the others. There is also a tendency for the arsenic to increase. Whatever data have been examined for European brasses of the same period also indicates this phenomenon (Werner 1977, 144-220; von Bibra 1869,153-205, Werner 1970,138-151; British Museum 1979, unpublished - see Appendix II).

The great metallurgical brass industries really came into being during the fifteenth century in Europe (von Bibra 1869,194). Little is known about the Portuguese metallurgical expertise of the fifteenth and sixteenth centuries. Copper and silver were mined at Alentejo, and tin came from the Algarve (Marques 1976,67-68). Calamine necessary for brass was found mainly in the Tirol and Carinthia, especially in Moresnet (Sundstrom 1965,229).

During these centuries brass production was centered in Germany and the Low Countries. The products were shipped from Aachen to Spain, Portugal and overseas. Generally, the European exchange of copper and brass goods centered largely around the Rhine, Maas and Schelds estuaries (Sundstrom 229, Strieder 1932,352). Copper goods were also shipped from the Tirol and Styria to Venice for Mediterranean distribution.

From the beginning of the sixteenth century copper and brass goods were shipped from the Low Countries and Germany to Portugal and from there to Guinea. Since the Guinea trade, in the early days, was a royal privilege, the Portuguese king maintained agents in commercial centers such as Bruges and Antwerp, where negotiations with the great trading houses such as Fugger took place. Most of the metals were sent directly to the royal warehouse in Lisbon (Strieder 1932,251).

Under the Fugger aegis metallurgical handbooks began to appear with increasing frequency and expertise could be more easily transferred. By the first half of the fifteenth century German bombadiers were in Portugal teaching the local artillerymen how to manufacture shot, gunpowder and brass cannons (Strieder 1932,259 ftn.2). English brass may have to be discounted because in 1529 Henry VIII had a series of statutes passed which prohibited the export of brass, bell metal, copper and latten. In 1546 Henry purchased 382 tons of copper from Fugger (Aitchison 1960, vol.II:392). It was not until 1566 that copper production once again started and by the end of the century output amounted to between four to five hundred tons per year (Aitchison,396). The absence of English brass may also be due to the fact that there was no consistent voyaging to West Africa before 1551 (Blake 1942,249; Ryder 1969,169).

Comparison with Akan goldweights

The Akan goldweights can be divided into two major periods for the purposes of datings namely Early Period: 1400-1720 and the Late Period: 1700-1900 (Garrard 1973,160 ff.). The engraved styles of the Early Period (Garrard's classes 1-5) are probably the oldest. Since these weights were used by Islamic and European standards they were made up to the seventeenth century. Garrard thinks they were not made in any numbers after the said time since they had fallen out of use. The Late Period styles included the truncated double cone.

The carved pieces of the Early Period may not date quite so far back and probably are better placed between 1500-1720. These are more common than the engraved pieces and were likely to have been in common use when the gold trade was at its maximum in the sixteenth and seventeenth centuries. Polygonal and rectangular weights which are decorated with bars and swastikas are typical of the era 1500-1720. Weights with more diversified designs (Garrard's classes 8-10, see his plates 1, 2, 3, 4, 1973 following page 154) perhaps should be dated to 1600-1720 and one or two types such as the pyramid persisted into the Late Period.

In 1972 Werner reported the chemical analyses of some thirty-seven Akan Goldweights, either with geometric decor or form (Werner 1972,428-429). Some twenty-two pieces exhibited comparable alloy contents to the Benin wall plaques. The agreement of 59% of the Akan weights may be just enough to take it out of the realm of coincidence. In the same 1972 paper (438-439) eight out of sixteen analyses of Akan gold dust boxes agree with Benin wall plaque chemistry (50%). If both sets of Akan items are only compared in the major chemical elements of zinc, lead and tin and the minor or trace element of nickel the agreement is over ninety five percent (eliminating arsenic and antimony).

It is fully understood that this type of comparison may well be a blind numbers game and the similarity in alloy contents is fortuitous. On the other hand there could be an indication that whoever supplied the Akan with raw materials could have supplied Benin, or the city had access to the Akan trade routes. In the fifteenth and sixteenth centuries the Akan travelled north on commercial expeditions where they traded for salt, cloth, metal vessels and kola nuts (Garrard 1972,5). Large quantities of gold flowed north along these busy arteries, particularly through Gonja in northern Ghana. It was reported in the reign of Abdulahi Burja (A.D. 1438-1452) that the roads were opened between Gonja and Bornu and in Yakubu's reign (1452-1463) merchants started coming to Katsina from Gonja (Kano Chronicles, Palmer's trans. 1908,75,77).

Additionally there were strong commercial connections between the Akan and the Niger river entrepots of Timbuktu and Jenne in the fifteenth and sixteenth centuries (Garrard 1972,5). A wide variety of goods was known to have flowed south.

The Portuguese rounded Cape Bojador in 1434. In the second half of the fifteenth century from their heavily fortified feitoria at Arguim and other factories or trade areas along the Senegambia they had managed to divert much of the trans-Sahara trade (Boxer 1977,28). It does seem probable that whatever brass goods were reaching the Akan and the Bini were the result of Portuguese trade prior to their actual appearance in Benin.

The metallurgical evidence shows the strong comparability between European brasses of the fifteenth and sixteenth centuries to Benin plaque materials. The historical information tends to confirm the chemical data that European materials were in use along the Guinea areas before the actual presence of the Portuguese.

Chapter 5

Influences upon the wall plaques

The only documentation of the origin of the wall reliefs is Roupell's account of an oral tradition he chronicled while on duty in Benin city in 1898. The particular tale is set forth in both Ling Roth's 1899 paper (,6) and in his 1903 text (,229 et seq.).

> "When the white men came in the time when Esigie was king, a man named Ahammangiwa came with them; he made brass work and plaques for the king; he stayed a very long time, he had many wives but no children; the king gave him plenty of boys to teach; we can make brasswork now but not as he made it, because he and all his boys are dead. Before King Esigie died he sent one man named Inoyen to the white man's country with some white men; he stayed long, and when he returned he brought back with him that plain stool and a message of salutation from the king of the white men. When Erisoyne was king he had one made like it so that men might see it and say, 'Look, Erisoyne made this.' When Osogboa was king, he sent messengers to the King of Igbon Ibo, (? a country near the Niger), but the people of Igbon were bad and killed the messengers, then Osogboa vex, and he sent war against Igbon and caught the king and plenty of his people. When they brought them Osogboa called Ahammangiwa and his boys and asked them if they could put them in brass; they said 'we can try', so they did and those are they - then the king nailed them on the wall of his house. The other plaques are pictures of white men, friends of the kings and Ahammangiwa, but who they are or their names we do not know. The remaining plaques we do not know who they are. The white men's house is near Obayagbon's, it is where the first king put them - it has always been kept up ever since - it has fallen now since the war. Ahammangiwa was a white man. In the time of Esemede, Overami's the late king's grandfather, white men named Ayniaju, the man without eyebrows, and another named Cappy Dor, used to live and trade at Gwatto. Chief Eseri was alive then. Cappy Dor was a big stout man" (Ling Roth 1903,229 et seq.).

A chronology of the wall reliefs based on the Ahamman Giwa tradition would date from either the reign of Esigie (ca.1504) or his immediate successor Orhogbua (Osogboa, ca.1550).

One of the major unanswered questions within the corpus of Benin art, and especially within the wall plaque series, is whether the initial two dimensional metal castings were figurative or otherwise. Almost all the previous writers have studiously avoided this problem, probably because there is no way of formulating an answer from the visual and physical evidence.

If one considers children's drawings the first organized geometric shape to appear is the circle because it has centric symmetry and does not single out any one direction. Once the circular shape has emerged it establishes contact with similar objects perceived in the environment (Arnheim 1976,176). Being the most unspecific shape, spheres, discs and rings figure prominently in early models of the earth and the universe because unknown spatial relations are represented in the simplest way possible. This is not based upon observation. Such spatial form is used equally by adults when no further specification is available (Arnheim,176). On a practical level such forms are the simplest to cast and since there are probably cosmological inferences that could be drawn from the shape itself it could well have been represented upon the initial plaque sculpture. Only in this case one is not dealing with either children groping or learning order from chaos or adults without any specification.

Prior to the Portuguese presence Benin was a highly structured culture which more than probably produced works of art, and had a previous metal casting or working tradition. Also, ivory and wood relief carving as well as pottery and even weaving were known. In a subsequent section of this work there is a discussion of background motifs, such as the circled-cross, foliate, low reliefs of heads, animals, and inanimate objects. Ben-Amos thinks most of these forms are connected with Olokun and are therefore a commentary on Esigie's reign, when the powers of the sea worked behind the Oba to strengthen and expand the kingdom. A direct reference to the arrival of the Europeans. It will therefore be assumed that the figurative compositions were either the earliest or among the earliest representations seen on the bas-relief wall plaques.

Iconography, tradition and physical data tend to place the reliefs within the second major period of Benin sculpture: the period of the leaded brasses and the 'style' which the viewer always associates with Benin work. The earlier or bronze period being the era when the sculptures which have the closest affinities with the 'Tsoede' group were cast.

'Bronze' casting is thought to have been introduced during the reign of Oguola (Egharevba 1968,11). This single tradition has provided the basis for several chronologies. Professor Ryder, writing on the 'Historical Implications' of the Connah excavations in Benin City, previously discussed, noticed ".... the notable lack of evidence for

'bronze' casting in the early phases of the cuttings." He suggested that perhaps the use of 'bronze' came early to Benin and the lost-wax innovation came later; this had to await the arrival of the Europeans with sufficient quantities of metal in order to leave an archaeological record (Ryder 1975,242-246). He went on to prognosticate:

> "Surveying the extant corpus of Benin 'bronzes' I feel that a later date for the introduction of the technique carries more conviction than an earlier one. On the other hand it is again necessary to bear in mind that only a small area of the old palace has been investigated and that the missing evidence may turn up elsewhere. Even if it does I imagine that it will be found that most of any pre-fifteenth century brass work went into the melting pot at the time of the cultural revolution which accompanied Ewaure's development of the city" (Ryder 1975, 245).

Ewuare, known as Ogun, was the rightful heir but power was usurped by another brother. He murdered the Oba, and prior to accession had the city burned as an act of revenge for his earlier banishment (Egharevba 1968,13).

Ewuare's reign was marked by continuous change and expansion, not only of the city but the kingdom as well. New alliances were forged, new titles were created and there is mention of the Oba greatly encouraging ivory and wood carving (Egharevba 1968,13). Since it was both a political and cultural upheaval one would expect brass or metal casting to also expand. Paula Ben-Amos thinks Benin underwent a change in metal casting traditions during the Ewuare period (1979,personal communication). In the beginning years of Ewuare's reign, if the Egharevba kingship list is anywhere near correct, very little of the European brass was probably reaching Benin. However, in the latter reaches of the Ewuare period the Portuguese were on the Guinea coast in the Bight area and de Sequiera was reputed to have visited Benin in 1472, just before Ewuare died. It is most probable that during this period European brass was flowing into Benin, perhaps not in anywhere near the quantities which took place during the reigns of Esigie and his successors (Bradbury 1973,34).

Ryder's speculation about remelting is logical concerning the early period of the Oba's reign and this may well be the reason why so few true bronzes are known from the city. Also, remelting took place in subseqent kingships, but it appears when one considers the total number of Benin pieces, and those made from brass and those made from bronze, that continuing supplies of metal kept this to a minimum.

It may well be that Professor Ryder's 'early bronzes' are the Fagg 'Lower Niger Industries' sculptures and because of the lack of materials the craft died or nearly died. It was the Portuguese presence on the coast and the coming of Ahamman Giwa with his knowledge that caused the second or brass period to flower. The first or bronze period is considered to have existed from Oguola to Ewuare.

The oral traditions are contradictory in relating who was Oba when the Portuguese arrived in 1486. One legend recounts how Esigie, who was old, sent to the coast (or the country by the big water) messengers requesting the whitemen to come to Benin (Ling Roth 1903,9). Another tells how the Europeans started to come to Benin during the reign of Esigie and how, if Esigie died, he would be reincarnated in Benin, and then the Europenas should come again (Jungwirth 1968,183). In this version it was Esigie who fought the Idah war (ca. 1515-1516), with the help of the Europeans and their firearms but it was Ozolua who was Oba (Jungwirth,183). In this same tradition the Idah war is mentioned again but in this instance Esigie was king of Benin. Still further in this legend, after returning from the Idah campaign, Esigie was entertaining the Europeans when his father, Ozolua, became incensed because he could not understand the conversation. Ozolua thought his son was deceiving him and began to think about inviting Esigie's brother to Benin to threaten the throne (Jungwirth,184). The tradition ends with Esigie becoming king after Ozolua and sending for the Romans to come to Benin. When the priests came they established their church on Erie street. It was either Ozolua or Esigie who was Oba when the Portuguese arrived in Benin.

Bradbury (1973,33) mentions that in August 1517 a Portuguese official reported how a priest was going to be sent to Benin to convert the Oba, a youth ruling through two of his captains. If this information is correct the Oba who died in either 1516 was Esigie or Ozolua (Bradbury,36). Oral tradition seems to be firm that it was Esigie who fought the Idah war, and this occurred relatively early in his reign (Egharevba 1968,27). Ozolua died while engaged in a war against Uromi (between Benin and Idah). It was this battle rather than the Idah war which is referred to in the Portuguese accounts (Hodgkin 1975,127; Blake 1942,123-124), and it was Esigie who assumed the throne while still a minor in 1517 (Bradbury 1973,37). Egharevba (1968,26) firmly reports that D'Aveiro first came to Benin during the reign of Ozolua. In a sense this type of historical comparison may be quite useless, since

there is no doubt that Egharevba had access to Bradbury's analyses and might have been influenced, and the same arguments could be made for Jungwirth's informers who most probably had access to Egharevba's history. Whether it was Ozolua or Esigie who first welcomed D'Aveiro to Benin in 1486, or died in 1517, is only important if historical dating is to be attached to the various kingships. The merit of physical dates to an art historian is that it makes the entire package more tidy and comfortable, and therefore provides for easier comparisons. The present writer initially attempted to use actual dates but because oftentimes there is a lack of causal relationship between events, reigns and historical time, the scheme was abandoned in favor of kingships. Henceforth, time periods pertaining to brass casting will be considered as having occurred between the reigns of one Oba to another, except in the few cases when positive identification to the westerner's view of time periods can be made.

The Ahamman Giwa tale and Egharevba's account of the Esigie kingship both speak of an improvement and probable fluorescence of brass-casting during this reign (Egharevba 1968,28). On the other hand, it is possible that wall reliefs were cast during the first Benin period, and as Ryder has suggested, they were subsequently remelted or even buried and only await excavation. There are several plaques which are true bronzes and these may be the remnants of the earlier period or a remelting during the second or brass period, when supplies became slim. However, in this type of situation one can only deal with probabilities which emerge after a comparison of the possibilities. The composition of the overwhelming majority of the Benin reliefs which have been chemically analyzed is leaded brass of European origin. The traditional and historical data also point to the time after the Portuguese presence. Hence, it must be concluded that plaque casting began sometime after the Portuguese began active trading in Benin. The reasons why there are two definitive styles or morphologies within the Benin corpus may lie in the mystery of Ahamman Giwa.

Mystery of Ahamman Giwa

Both versions of the tradition (Ling Roth 1899 and 1903) mention that Giwa was a white man. The 1903 recounting indicates that Ling Roth was quoting the Roupell account concerning the particular colour of the artisan. While the 1899 account could be taken to indicate that Ahamman Giwa being a white man was a Ling Roth conclusion. If he was white the inference is very strong that Giwa was a European who was part of the Portuguese trading mission to the Benin area.

Marquart (1913,42 et seq.) in his discussion of the origins of Benin art thought Ahamman Giwa (AG) was the Portuguese missionary leader discussed in the Pires 1516 communique (Hodgkin 1975,127). The significance of the phrase 'he had many wives but no children', according to Marquart, does not indicate the impotency of the caster but rather this is a reference to a priest and Catholic nuns. The sisters were part of the mission and did the teaching and other mundane tasks which are indispensable to the success of any prosetylizing endeavor. Marquart thought the bas-reliefs on two Afro-Portuguese ivories (plate X, figs.1 and 2) where clothed and partially clothed individuals with their hands clasped in front of them in what may be termed a praying gesture could be taken as proof of his assertion. There is little or no evidence to associate these particular salt cellars or horns with Benin during the Esigie period (Ryder 1964,365). Further, the Ling Roth 1899 account (also 1903,9) of Roupell's field notes specifically mentioned the 'officials never heard of white men bringing white women.'

In addition two other writers (Crahmer 1909,362; Strieder 1932, 256) argued in favor of European origins for Ahamman Giwa. Perhaps, Strieder's comment is the most interesting: if the name is hyphenated to 'Ahamman-Giwa' then Ahamman becomes a mutation of the Portuguese 'Alemao' which means German. There is evidence that German artillerymen were in Portugal during the fifteenth century teaching brass-casting, so the connotation is not quite so far fetched as it would initially seem.

Westermann (1920,646), took a linguistic approach and claimed Ahamman Giwa was a Hausa named 'Mohammen Giwa' or the 'Elephant Mohammed'. Struck (1923,141), also a linguist as well as an ethnologist, believed Westermann's analysis provided a simple and authentic solution to the identity of the mysterious teacher. Struck reconsidered the historical evidence pertaining to possible extensions of the name or titles between the Hausa regions and the Nigerian - Dahomey coast. His great emphasis was upon the political-religious upheavals which took place in Islamic Northern Nigeria, especially in the Zaria-Katsina area, with probable resultant migrations taking place into the south. Struck realized the possible difficulty concerning an elephant hunter turning brass-caster and pointed out that 'Giwa' is the proper name of a small village some 40 km. northwest of Zaria, and the name could mean Mohammed of Giwa (Struck 1923,footnote 160).

The Westermann-Struck hypothesis was carried a bit further when Sölken (1954,286-291) proposed that in the southwestern portion of Katsina there existed a 'Bini' in which brass casting took place. Therefore, it would be hardly surprising in another Bini brasscasting center, which may have antecedents to its northern namesake, in finding the attributed name 'Giwa'. Giwa would be used by a respected individual to demonstrate that he was of the Katsina dynasty which used the Elephant-Sun totem, and which was completely swept away by the first appearance of the Hausa. Sölken argued the apparent contradiction of a light skinned caster coming with the Portuguese could be eliminated if AG had emigrated to the south and subsequently arrived in the city with the Europeans. In any case, according to Sölken, it is hardly thinkable that the Bini would give a foreign brass-caster a non-local surname unless there were previous connections to the Hausa areas. As additional evidence he cites the various oral traditions concerning the origins of the Bini (Edo) from somewhere north of the Niger (also see Struck 1923,130, ftns.7 and 63; Glück 1951,32).

There is agreement in the basic tenets of the Ahamman Giwa tradition with other oral traditions which mention the fluorescence and improvement in brass casting during the reign of Esigie. Roupell's informants may have been polite when they narrated that the artisan was a white man or they could have been accurately reporting what they themselves had learned. The presence of the outsider being given Binis to teach does indicate the demise of the previous craft and the influx of new ideas and techniques. The Benin technique of casting: beeswax, separate heating of mould and metal, pouring the sculpture upside down, and the use of armatures, are all very remindful of European fifteenth and sixteenth century practice. Casting in the northern regions of Nigeria generally uses a vegetable latex for fine modelling, the mould and metal are not heated separately, the use of charcoal instead of organic matter for gas entrapment during casting, and the probable lack of armatures. On many of the basics the two techniques are slightly different but the cumulative effect is of different schools and different sources.

The probability of Ahamman Giwa being a trained Renaissance sculptor is very small. It is more than likely his skills lay in casting military and marine hardware and not in figurative compositions. Ivory and wood carving were greatly encouraged under Ewuare (Egharevba 1968,17) and there may have been many carved items both in relief and

full sculpture which could serve as models or prototypes. Giwa may have been a Moriscoe or from a Latin area and his similarity in colour could have resulted in the name Giwa.

A quotation

> "We have in the bronze plaque, fig.1, an illustration of a European with a matchlock in the costume of the middle of the sixteenth century, and Messrs. Read and Dalton very justly call attention to this, on account of the correct delineation of the dress of the period. It is therefore the middle of the sixteenth century that we can fix upon as the earliest date at which it was probable the Bini people had commenced to make plaques with European figures, but not the date at which they commenced to make any plaques at all. Benin was discovered by Sequeira, about 1472. By about the middle of the sixteenth century (i.e. 1550) we have an almost perfectly accurate figure of a European presumably made by a native. It is not conceivable that an introduced art could have developed at so rapid a rate that within seventy years (probably less, for the art would not have been introduced the first day) such a high pitch could have been attained by the natives? As an alternative, I can only repeat, as above suggested, that the art existed in Benin prior to the advent of the Portuguese, but that, as was the case with many other things with which the Portuguese came in contact, these remarkable explorers left their mark strongly impressed upon this art work, and thus it may be that the natives began that series of borrowed forms which is so puzzling to us. But in an effort to ascertain the origin of the Benin bronze art, we cannot pass over unnoticed that several of their institutions show indications of exotic origin and that the ornamentation is full of foreign forms (Ling Roth 1903,233).

Roman Catholic influences

The 'colour of authority' under which the Portuguese came and attempted to convert the heathen was primarily the Papal Bulls of 18 June 1452, 8 January 1455 and 13 March 1456 and called 'Dum Diversas', 'Romanus Pontifex' and 'Inter Caetera'. In the 1452 decree the Pope authorized the Portuguese king to conquer the unbelievers and transfer their lands to the Portuguese crown and reduce the individuals to perpetual slavery. Arguments still persist whether the Papal Bull only referred to the conquest of Ceuta in 1415 or whether it also included the whole of the west African coast. The second and most important reaffirmed the first and explicitly gave the Portuguese a monopoly southward of Cape Bojador to the Indies. The king was charged to send priests and build churches and missions. Other nations were specifically prohibited to interfere with the Portuguese right of discovery, conquest and commerce. The 'Inter Caetera' issued by

Calixtus III again re-affirmed the Portuguese position and granted the Order of Christ ecclesiastical and ordinary powers from Bojador to the Indies (Boxer 1977,19-23).

The Portuguese sovereign being told by the Supreme Pontiff to work for 'God and Profit' despatched Joao Afonso D'Aveiro, a member of the Royal household, to the Mina coast. It was D'Aveiro who made either the first or second European contact with Benin in 1486. Upon his return to Europe he informed Dom Joao II that Benin could supply slaves and pepper. He also recounted how it was organized into a powerful divine kingdom with a spiritual overlord, who lived somewhere to the east of Benin and whom they called 'Ogane'. It was this 'Ogane' who confirmed the new Oba by sending him gifts which included Maltese crosses. The Portuguese were seeking the Negus and the tale fired their imaginations about Prester John who reportedly lived in east Africa (Crone ed. 1937,126-127).

D'Aveiro returned to Benin in 1487, and acting upon the instructions of his sovereign organized a trading post at Gwato (Ughoton), located on a tributary of the Benin river (Rio Formosa) some nine leagues from the city. The history of this post is obscure but it does seem that it was not continuously manned by Europeans between its founding and its close in 1507. The early Portuguese trade was concentrated in slaves, pepper and a variety of stone bead which was again traded on the Mina coast for gold. Ivory, initially, played a small role despite the demand in Europe (Ryder 1969,32-37).

In 1515 the Oba sent an Embassy to Portugal, ostensibly to plead for Roman missionaries but in reality most probably to secure firearms (Ryder 1961,233). The king complied and after a subsequent exchange of letters between monarchs, the priests, vestments, altar furnishings and books arrived in Benin city in August 1515 (Ryder,234-235). The Oba was away and when he returned in 1516 he ordered that one of his sons and the sons of other chiefs were to be baptized and to learn to read and write Portuguese.

Ozolua is believed to have died in 1516-1517, poisoned by his own soldiers (Egharevba 1968,25). Effective control of the empire then passed into the hands of the chiefs, as the heir-apparent was still a minor. The regency period may have provided the means of ending the innovation of an unpopular ruler, and the Portuguese Benin mission was abandoned about the same time. All attempts at conversion were forgotten until 1538, when the Portuguese king on his own initiative sent another mission. This attempt may not have been primarily for re-awakening the

dormant spirit of Catholicism in Benin as to bolster up the Portuguese trade. French privateers were beginning to make serious inroads into the Portuguese monopoly and the presence of priests in Benin could be used as a possible lever against the French. It was a short lived attempt and some one hundred years had to elapse before the church tried again.

The third effort was mustered by the Sacred Congregation for the Propagation of the Faith, established in 1622, to direct all missionary activities. Rome did not recognize the reconstituted Portuguese government until 1668. The Spanish meddling was successful and the mission was assigned to the Capuchins of Valencia and Aragon (Ryder 1961,241). The Spaniards fared no better in Benin than their earlier Portuguese brothers although they tried in 1651, 1655, 1689, and 1710-1719. The total effect of all these attempts was probably no more than a usurpation of dress and ritual. Any change which did occur were probably the result of internal political need, or the inroads of Islam (Ryder 1961, 231-259).

Motifs

There exist a number of patterns and motifs such as the interlocking diamonds, guilloches, fish-legged figures and snake and bird which probably are not Benin inventions. They were seen and copied. The origins of these motifs could well pre-date the earliest Benin culture and several arguments could be made as to when and how they first came into use in this forest kingdom. It is a choice of probabilities and oftentimes the most straightforward and direct solution may not provide the correct answer. Only three of the more well known motifs will be discussed.

The complexity of the fish-legged figure motif makes it very doubtful that it was re-invented in Benin. Professor Frazer (1972,261-294) has investigated the origins of the emblem and concluded that it entered Benin cosmology prior to the European advent, probably through North Africa. His main argument is that both Benin and Yoruba iconology were influenced by the art of the eastern Roman empire (B.C. 100 to A.D. 300).

Frazer (1972,289) claims ivory relief carving pre-dates brass-casting since it was initiated during the Ogiso dynasty by King Ere (Egharevba 1968,1). He also believes wood and ivory reliefs preserve an older style and that many of the groupings and motifs were taken over by the metal workers (1972,289). In the same paper his fig.14.4 is

a drawing of the fish-legged Oba taken from an ivory carving, the original of which is in the British Museum, showing the Oba wearing about his waist three European heads. Further in his fig.14.7, taken from von Luschan 1919, Abb.623a. and therein considered Benin, only one half of the original photo is shown. The absent portion illustrates a European rowing a boat. If ivory carving was introduced by Ewuare (Egharevba 1968,17), who ruled after Oguola, the reverse could possibly be true, and the ivory carvers copied the brass-smiths. In Ewuare's period there may have been contact with European goods (Bradbury 1973, 34). Frazer has neglected to mention how he was able to determine these ivory pieces; especially his fig.14.7 ante-dated early Portuguese trade on the Guinea coast.

The 'Melusine' mermaid figure (von Luschan 1919,402,406) with scalloped skirt and holding her own legs is often seen in twelfth century heraldic motifs (Frazer 1972,273). It is also found in fifteenth century Spanish and Italian engravings as well as on a sixteenth century Neapolitan textile (Frazer,277). The two variants which Frazer felt were missing from the European representations and are found on Benin sculptures are the crossed baldric, and upturned legs terminating in an animal head. The baldric does not consistently appear on the fish-legged Oba plaques (fig.O:1 p.52). Also, the motif with and without the terminating head is seen on the ivory reliefs (von Luschan 1919, Abb.616-623). In the 'D' shaped or arched wall plaques the fish's barbels have been replaced by leopards' feet (fig.D:1 p.56). The fact that both variations do appear in Benin art can logically be construed in favor of European antecedents. The Nubian and European usage of the motif during the same period does not make the one or the other thesis more correct. The European rowing the boat next to the fish-legged figure (von Luschan 1919,Abb.623) is undoubtedly a reference to Olokun, but it could be taken as a possible reference to the transfer of the motif through European influence. At least, if one accepts the European idea the difficulty of spanning centuries and distance is eliminated.

Equally known is the bird-serpent pattern seen occasionally on the wall reliefs, primarily in connection with the Oba's palace. This configuration appeared atop the pyramidal-shaped towers within the Oba's compound during the 1640s and possibly earlier (figure BC:1 p.24)

In Indian culture the bird Garnda or Supara is the carrier of the sun-god Vishnu and is always depicted with his serpent counterpart, Naga. The bird-serpent was alos found among the Greeks, and the Iliad describes a fight between the eagle and the snake. The motif survived and appeared in the dream books of the middle ages and proved so popular it was adapted by Popes Clement IV and Paul III. Paul had medals struck in 1540 with this imprint. It was not only limited to ecclesiastical imagery and folklore; Henry of France used the symbol to help celebrate the demise of his mortal enemy Henry of Guise in 1588. Also Charles of Bourbon and Navarre had a medal struck with the eagle and snake similar to the Byzantine motif (Sadeler 1601,vol.I.,57). The motif is again found on a capital at Nevers, which could indicate that it came to France from Spain during the Hispano-Moresque influence. The bird which occurred in most medieval bestiaries and literature is the long-necked white bird with a large beak, similar to the swan. There are also references to the eagle and serpent in the gospel of St. John, and paintings of the evangelist usually have the eagle present as an identifying mark (Wittkower 1938,298-321). The snake and eagle tradition was so popular that a sixteenth century sailor reported that a fight between the two actually occurred on one of his voyages (Burrage 1906, 128). The usual motif is the bird holding the snake in its beak or talons, or as in the Byzantine version the eagle attacking the snake (Rice 1968,120). The Benin plaque variant is the snake crawling away from the outstretched long-beaked bird. This is found on B.C. sixth century Corinthian vases where the bird appears in its mantic significance (Wittkower 1938,309). The more usual snake-bird configuration is found on the forehead medallion of the 'Jebba Bowman' and the tunic of the 'Gara' figure.

The popularity of the bird-serpent motif throughout the middle and far eastern as well as the European world makes it extremely difficult to ascertain the route. It is tempting to postulate a European source, as the design could have been seen on priestly vestments and accoutrements, bible illustrations, coins or even a printer's mark (Wittkower 1938,323). The probable age of the Tsoede bronzes does seem to preclude a European origin. Further, the snake and bird were well known Egyptian signs and this particular emblem could just as easily have stemmed from Bini history.

The Maltese cross is another motif that one is tempted to argue came to Benin with the Portuguese. The 'Ogane' legend of the crosses being sent to the Oba and being worn by the Oba's messengers to this spiritual overlord indicate an earlier use in Benin. The 'Maltese Cross' shape is seen on Mesopotamian pottery over 4,000 years old (Frankfort 1977,17). Hence, it could have entered the Benin area from almost anywhere from the north. Hefel (1943,64) suggested that the Benin cross is a version of the Coptic St. Andrew's cross. Also, copper was cast in the Kongo in the form of an 'X' or cross. Considering the relative size of the Kongo cross it would have to cover most of the chest of the wearer. On the other hand scale is often disregarded in Benin art and therefore size may not be a determining factor. The cross is also the symbol of Ohen-Osa (priests of Osa). Those who take part in the Ague or native fast receive a cross from the chief Osa priest, who is a direct descendant of the native Roman Catholic priests of the sixteenth and seventeenth centuries (Egharevba 1971,88). This would indicate a probable European introduction.

Foreign influences: India

In 1482 Dom João II sent his squire, Diogo Cao, on an expedition of discovery to Africa. The first voyage went as far as fifteen degrees south, and in the second, 1485-1486, he managed 22°10' south, almost to the Tropic of Capricorn. In 1487 the Portuguese explorer, Dias, undertook another voyage to discover the seaway to India. At 33° south, a storm came up and forced the ships to stand off to sea. Eventually they started running south once more, then turned east and finally north. The explorer soon realized that land was to the port and the tip of Africa had been circumnavigated. Forced to turn back Dias reported to João II that the seaway to India was open.

In July 1497 Vasco da Gama left Portugal with three ships and in May 1498 set foot in India (Marques 1976,219-226). By the first quarter of the sixteenth century armed Portuguese merchantmen controlled the main spice route from their strongpoints at Ormuz, Goa and Malacca (Boxer 1977,47). The Asian products were either bartered in the inter-port trade or else they went directly to Lisbon where they were re-distributed to the various European and Mediterranean trade entrepots for metals, cereals, textiles and various other manufactured goods upon which the Portuguese seaborne trade heavily depended (Boxer,52). Several crises developed during the mid-sixteenth century which somewhat changed the basic patterns of trade. Antwerp lost its pre-eminence and

was replaced by Amsterdam and Seville. The Portuguese crown let a series of private contracts for the overseas development and trade in which the crown was a partner 'en commendam'. After the Hispanic crises of 1607 there was a shift away from the heavy depndency upon Italian, Flemish and German participation to a more open type of trade which included Spain, England and France (Marques 1976,275).

Professor Ryder (1969,41) commented upon the Indian goods which were used in Benin:

> "It is worthy of note that many of the finer articles among the gifts and merchandise were of Indian manufacture, and that such items continued to figure prominently among the goods brought to Benin by the Portuguese and other European traders. One would like to know whether they exerted any influence upon local taste and design. But perhaps the most striking thing about these trade goods and presents is that almost all could serve only for personal ornamentation; strictly utilitarian articles were conspicuously absent (Ryder 1969,41).

Arguments favoring Indian influences in Benin art were first written about in 1909 and 1910 (Crahmer 1909,360-364; 1910,78-79). Philip Dark also mentions possible influences through ivory carvings and paintings (1973,4). Perhaps one of the reasons for the appeal of Indian art in Benin was the easily recognizable similarity in iconography (figs. I:1-4; BFS:1) pp.166-168 p.168)

About the beginning of the western Christian era the Indian Vedic gods were replaced by the great Hindu trinity of Brahma, Vishnu and Siva. Brahma is the soul and creator of the universe and Vishnu is the deity who grants salvation through personal devotion. Vishnu is believed to have origins in one of the Vedic sun gods and is considered to be the saviour of the world. Brahma recreates the world for Vishnu, and in each of these world cycles Vishnu appears in a different form. Hindu art has represented the god in the form of a boar and as a lion when Vishnu had to strike down an impious king for threatening Vishnu's divinity (Rowland 1974,51). The Indian traditions tell of Vishnu's prowess rivalling Herakles and about his amours being equal to if not greater than Zeus. The third member, Siva, is the god of destruction and the symbol of death, only in the sense of death being the creator of life renewed by Vishnu and Brahma. The 'langram' and/or tree is the symbol of Siva. There is little doubt that along with the artefacts legends, stories and allusions were transported by the European seamen and possibly repeated to the feadors.

The presence of block prints in imitation of real tie-and-dye work in Egypt of actual Indian textiles has caused some scholars to believe that from the thirteenth through the sixteenth centuries India was the sole or major producer of Egyptian cottons and linens (Rowland 1977, 335). The textiles of western India, especially the 'callicoe hangings' were exported to Holland, Portugal, France and England. The patterns consisted of elements from Chinese, European and Indian origins 'produced to satisfy the Western taste for the exotic, but united into an individual design by Indian hands' (Rowland 1977,336). The same stencils were probably used for both embroidered and stencilled patterns. Initially the chain stitch was used and subsequently other stitches were incorporated to show off the glossiness of the materials. Cotton paintings were also done for the local market as well as the markets of Persia and Europe. Rowland uses an illustration in his text (1977,337 fig.269) of a painted textile from the Kalahasti region in which the heads and feet of the figures are in full profile and the torso in frontal view. It is possible that the pagnes worn by the figures on the bas-reliefs where birds, rams, heads, crescents and a host of other shapes are seen were either Indian textiles or evolved from Indian designs.

Foreign influences: Egypt

Routes between Bornu and the kingdom of Gaoga, a state formed by the Bulala who lived between Lake Chad and Fitri, and further north to Dongola and lower Egypt were well known in the sixteenth century. Leo Africanus is alleged to have taken this route in the company of Egyptian merchants who regularly visited Gaoga (Bovill 1970,151). The strong basic similarity between the Lamurudu legend of Oduduwa, the founder of the Yoruba dynasty, and the Kisra tradition suggests communication and travel between Egypt and Nigeria long before Africanus's journey. The Kisra legend does indicate a cycle of expansion and change followed by the formation of kingdoms with the process being repeated as groups moved steadily south and west (Fage 1978,100). The probable common origins of the Jukun, Nupe, Yoruba and Benin kingdoms is sufficient evidence to cause one to examine the Egyptian and Nubian areas for possible influences upon Benin sculpture.

At about A.D. 1260 the Mamluk sultanate began to regularly raid the Nubian kingdoms. In 1325 the Christian king was captured and replaced by a Muslim pretender. The Mamluk conquest not only destroyed the resistance of the Nubian area to Islam but it also opened the more

southerly areas of the Sudan to nomadic bedouins who ranged to Kordofan, Dafur, Wadai and Kanem (Oliver and Fagan 1975,130). Whether the Mamluk or earlier Fatamid raiding in Nubia was the direct cause of sending groups of emigrés southwest into the forest belt is still speculative. Probably the emigrés entered metal-working agricultural areas such as Nok and then smaller bands migrated south (Fage 1978,105).

Hefel (1943,76) suggested three Benin art styles. The early works resemble Egyptian art from the eighth to the sixth century B.C.. The second style is a mixture of Egyptian, Oriental and Christian with increasing agreement in form and iconography. The third influence is Etruscan via the Roman colonies in north Africa. She makes a plausible argument by pointing out similarities between the Mediterranean cultures and the forest areas of Togo, Cameroons, Nigeria and Ghana in such things as impluvium style houses, burial of the dead and metal work (Schweeger-Hefel 1960,80-89; Hefel 1943,63-74).

The morphology of Benin sculpture, according to Hefel is based upon the Egyptian model of short, squat, erect impassive forms with the torso cylindrically modelled and arms usually close into the body. The unanswered question is whether the actual form was transferred or the conceptions of mythical and perceptive space. If it was the latter then the Bini need never have seen an Egyptian type figurative shape because, as this writer believes, the end result would have been the same. The Egyptian figure is based upon the cubit, and if one took the proportions of head to torso the cubit ratio would approximate the Golden Mean or Fibonacci series. The same proportion exists in Benin sculpture. The Golden Mean is perhaps one of the strongest examples which illustrates the close relationship of intuitive perceptions or felt relationships to reasoned conceptions or mathematical ratios.

The Benin wall bas-reliefs are only one aspect of a metal working tradition which stretches back centuries. The beginnings of it can only be hinted at in the barest of outlines. It has been suggested that copper alloy casting was done primarily by the tribes coming within the area influenced by the Kisra peoples (Murray 1941,77).

Kisra has been identified as Chosroes, the Sassanian king of Persia, who attacked and briefly conquered Egypt, in the seventh century A.D. Forced to flee up the Nile he sought asylum at Nupata with the local king, often called Mesi. The spirit Issa advised the expatriate prince to continue conquering to the west. Kisra heeded the advice and eventually reached the Niger and Benue valleys. The Nupata king had

followed the Persian prince and he reached Gobir (Haussaland). Kisra died at Bussa, in northwest Nigeria, and he or his followers are credited with founding the kingdoms of Borgu, Nupe, Jukun or Kwarafara, as well as Igala and Yoruba (Fage 1978,63-64).

It is quite possible the requisite casting techniques were transferred by the emigres from Egypt, and eventually reached the Niger-Benue confluence and the Guinea forest.

The Egyptian cire-perdue process used wax and clay. Small pieces were cast solid from wax models taken off permanent plaster moulds. Perhaps this was one of the earliest uses of mass production. Generally, the Egyptians tried as much as possible to do away with hand modelling, and even standard plaster negatives of eyes and hands have been found. The larger pieces by necessity were hand-modelled and cast in sections (Roeder 1937,226-263). Both sculpture in the round and bas-relief casting were known (Ägyptisches Museum 1967,Abb.814). In the two-dimensional pieces a terracotta master was made and a plaster negative was taken therefrom. Subsequently, molten wax was poured in, the two-piece mould broken open, and the wax impression was then wrapped in clay (Roeder,250-251). The antipathy towards hand-modelling and the constant use of standardized parts resulted in a frozen or static art. Even with the later Greek influences the overwhelming tendency towards rigidity remained. This is also seen throughout much of Benin art. However, as mentioned earlier, this just as easily could have been the result of the transference of the Egyptian weltanschauung and not the technique.

The same process of wax, clay cores and upside down casting was used in Europe in the fifteenth and sixteenth centuries (Roeder 1937, 254). The Egyptian or the Cinquecento European technique is also currently in use in Benin. It has always been assumed that the Benin version always used wax modelled over a clay core which was internally supported with metal armatures. However, this is a backward time extrapolation and may or may not be correct. It is possible the early bronzes used vegetal matter for investment modelling in lieu of wax.

Benin is only one of several known casting sites in Nigeria. Cultural and technological links most probably existed between many of the West African divine kingships, but the paucity of archaeological and other physical information precludes anything approaching a coherent picture from emerging. Somewhat tenuous connections can be forged between the 'Tsoede' group of bronzes found at Jebba, Tada and Giragi,

on the Niger, and the Benin bronzes which now bear the label 'Lower Niger Industries'. It is very probable that this scholarly fiction is a misnomer, and these pieces represent the early Benin works of the bronze or first period. The problem has never been studied in depth and it would premature at this writing to formulate any sort of direct Egyptian-Benin connection.

Chapter 6

Ivory and wood bas-reliefs

The beginning of the craft (Igbesamwen) is traditionally credited to Ere, one of the Ogiso kings (Egharevba 1968,1). If the tradition is historically correct then ivory and wood relief carving does pre-date brass casting (Oguola ca. 1280 or 1380). The question is still very much unanswered whether plaque casting was the next step taken by the Bini, using the other media as prototypes or models (Lawal 1977, 199; Fagg 1963,33). None of the wall plaques can be dated prior to the Portuguese presence. The comparability of the alloy content of the overwhelming number of wall plaques which have been chemically examined to fifteenth and sixteenth century European leaded brasses makes a prior development doubtful. Also, when the Bini casting technique is compared to the European method the odds become much slimmer. The few bronzes in two-dimensional form are mixtures of the earlier bronzes and later brasses. It is possible that all the known earlier bronze plaques were remelted or have not as yet been discovered. When one considers the present state of our knowledge, plus the large corpus of plaques which are presently known, a statistical evaluation indicates this is not probable.

The much replaced remains of fourteen elephant tusks were found in Feature 21, Clerks' Quarters Site, and radiocarbon dates were A.D. 1230±105 and A.D. 1385±100 (Connah 1975,60-62). The dates fall squarely within the Oguola tradition but they are somewhat earlier than the second or brass period (Esigie ca.1504-1550). There was no mention in the excavator's reports whether the tusks were relief carved. The lack of physical evidence again prevents a definitive conclusion that ivory and wood carving pre-dated metal work (see an earlier section for radio-carbon dates or Connah 1975,182). Wood is an extremely perishable item in West Africa and unfortunately nothing remains or has been found of earlier dated wood carvings. Even if Lawal's (1977,199) and Frazer's (1972,289) suggestions about ivory and wood reliefs pre-dating metal work, and the plaques started at a later date, is correct, one still cannot say with any degree of certainty that plaques were a Benin innovation. Whatever positive evidence is known favors the conclusion of William Fagg and others that Benin wall reliefs were most probably a European-influenced innovation in Benin.

PART TWO

THE CHRONOLOGY OF THE BENIN WALL BAS-RELIEFS

In each of the four major chronologies of Benin art the wall plaques have been considered to have started sometime in the sixteenth century. The termination of the first three vary from the first quarter of the seventeenth to the end of the seventeenth century. The fourth most recent attempt is an open-ended series, at least until 1897, the year of the British expedition to Benin. Generally, wall plaque production has been thought to be limited to approximately one hundred and fifty years, with the greatest production from the mid-sixteenth to the first quarter of the seventeenth centuries. The fourth or most recent try formulated a terminus ante quem at 1642 for European representations on the reliefs and 1590 as the datum between the medieval and modern periods. The series is kept open because of the lack of independent data and the fear that one could be reading time sequences into form sequences which may be nothing more than the relative skills of contemporary craftsmen.

The first attempt started with Felix von Luschan in the years 1898-1919, and was completed and published by Bernhard Struck in 1923 (113-166). Struck drew heavily upon the ideas of his predecessor and to some extent those of Ling Roth (1903). He agreed with von Luschan that among the earliest large two-dimensional castings or wall plaques were the European figure compositions. However, Struck believed their weaponry and dress were more consistent with a first half sixteenth rather than an end of century date (Struck 1923,146). Accordingly the plaques were placed in a time period between 1500-1575, with several of the more ornate and higher reliefed figures having been made no later than the mid-seventeenth century.

This was followed by William Fagg in 1958 and 1963 who postulated a mid-sixteenth to mid-seventeenth century period for these reliefs. Fagg depended upon the reports made by visitors to Benin in the 1640s or slightly earlier and in the very first years of the eighteenth century. In his 1971 attempt Philip Dark, relying on oral tradition once again, averred a second quarter sixteenth to mid-seventeenth century period. Fagg and Dark also formulated that the European figure compositions were among the earliest plaques. The last major attempt by Denis Williams used a morphological approach and agreed with his predecessors about the

European representations. Using the dress and weaponry of the Europeans Williams also came up with a mid-sixteenth century date. On the institution of brass-casting he inclines towards the introduction of the technique by the Portuguese, with the proviso that nothing in the Benin imagery even remotely suggests alien authorship (Williams 1974,287).

The only serious attempt at crystallizing an internal plaque chronology was done by Eckert von Sydow (1932,121-128). The work of von Luschan and Struck was used extensively. It was a stylistic approach and von Sydow believed the earliest pieces used the circled-cross background, were the flattest with minimum relief and the feet were turned parallel to the picture plane (1932,124). The second epoch saw a loosening of the figure with more volumetric modelling and the third or final epoch was an amplification of this. The temporal sequencing was that of von Luschan and Struck in which the European representations ended in the first third of the sixteenth century and the Bini battle scenes about 1516 (von Sydow 1932,127).

All the formulations have been done within the last seventy-five years, with three of the last four being promulgated in the last twenty years or so. It would seem unlikely that any new attempt coming so quickly upon the heels of competent predecessors could contribute anything of significance. In addition there is no disagreement with the beginning dates of the earliest figure compositions. However, the present writer believes his predecessors were incorrect in believing bas-relief wall plaques terminated sometime in the seventeenth century. The bulk of the castings using this form may have been accomplished in the time periods so delineated, but the evidence strongly indicates the form was never completely terminated and therefore could have lasted well into the eighteenth century and even beyond.

In Benin all brass casting was executed by members of a guild directly under the aegis of the Oba. When the king ordered a particular work, the guild assigned the artisan and he moved into the palace during the period in which the sculpture was being produced. A specific area was set aside and the caster became the responsibility of one of the palace associations. One would not expect to find morphological differences between the two forms when the very same people were involved in both. In several instances when comparisons were made between the wall plaques and full sculptures, especially the Oba memorial heads, disparities upwards to two hundred and fifty years were observed. The plaque termination dates would either be incorrect or the fault lay with

the dating of the heads. Visual evidence shows the heads have been incorrectly dated. The error lies in Dark's type 5 pieces, those with flanged bases and winged caps. These are most probably eighteenth century innovations instead of nineteenth as originally thought.

It is factors such as these which have caused a re-examination of the Benin art chronology and most especially the temporal sequencing of the plaque form. It is concluded that wall plaques are second or brass period sculptures and should be divided into two eras:

Period I: Esigie to Ozuere

Period II: Akenzua I to ?

This part is divided into four major sections: initially, the existing chronologies are examined; secondly, the overall and interval time periods are determined; thirdly, the plaques are divided into four categories according to primary subject matter and iconography discussed; fourthly, an overall view is considered in the conclusion or Historical Summary.

Chapter 7

Examination of the major existing chronologies

(a) Von Luschan-Struck (between the years 1898-1923)

Struck divided the entire corpus of Benin art into five major categories: Archaic from ca. 1140-1360 A.D. through the New Era from ca. 1820 through post-1897. The great majority of the 702 plaques listed by von Luschan (1919,12) were placed in category III. Great or Classical Time (ca. 1500-1691). More particularly the great majority of the reliefs were made in time period IIIa. ca. 1500-1575, with a 'natural spillover' into IIIb., ca. 1575-1648 (Struck 1923,146-148). The earliest plaques were the European compositions to which all others were compared, using style, casting technique and patina as criteria. The second sub-category was a fluid time with no historical data to account for the change in style and advancement in casting technique (Struck,149). The pyramid or quadrangular bells (fig.Bell:2 p.176) which exhibit great casting delicacy because of their filigree work are in this group and are primary evidence of the advancement in technique (see also von Luschan 1919,368-374). This latter period is when the delicate Queen Mother heads without a plinth (von Luschan,Taf.54), the broken Olokun shield plaque (von Luschan,Abb.426), and the fully sculptured European with matchlock and sword (von Luschan,Abb.430), were cast.

The immediate post-classical or great time was also the beginning of the decay era; in the Struck scheme it is labelled IIIc. 1648-1691 (Struck,151). In this period the palace reliefs were cast (figs.OP:1,2 pp.222-223) because the engraving made for the Dapper 1668 edition is based upon the information supplied by Samuel Blomaert, Dapper's informant, who visited Benin in the 1640s. Although both these works illustrate the downward facing python, the similar serpent plaques cannot be assigned to this era, because on stylistic considerations they must be placed earlier (Struck,153).

The von Luschan-Struck thesis is based upon an evolvement of form: from the plain naturalistic simpler pieces to the ornate higher relief more detailed and complex works. The whole chronological concept including the terminology is apparently based upon the Greek model (Richter 1974, chapter 3).

(b) Fagg (1958-1963)

The chronology question was again considered by William Fagg in 1958 and in 1963. The approach (Fagg 1963,34) was the same as von Luschan and Struck, with one very important distinction: those sculptures which were grotesque and did not seem to fit within the Benin canon of form were eliminated, and a scholarly fiction called the 'Lower Niger Bronze Industry' was created for these sculptures (Fagg 1963,39-40). Included in this category originally were the 'bronzes' from Jebba and Tada as well as the 36 cm. high 'Huntsmen with a Dog' now in the British Museum and the 'Woman and Vase' (Sotheby's Catalogue 1978;22,23; Ratton 1932,211).

Fagg called the plaques the 'sheet anchor' of the entire Benin art chronology:

> "The sheet anchor of my hypothesis of Benin art history- which differs appreciably from that propounded many years ago by von Luschan and his disciple Struck - is the great series of rectangular bronze plaques which sheathed the pillars of the palace in the middle of the seventeenth century. I define the middle period as that during which these plaques were being made - probably the century or so from about the middle of the sixteenth to the late seventeenth centuries - and all other sculptures conforming to their style are assigned to it; all pieces which appear anterior to them in style are allotted to the early period, while those posterior in style constitute the late period. Strong corroborative evidence for the dating of the middle period is provided by two very reliable Dutch accounts of visits to the palace: Dapper, writing in 1668, records with admiration the magnificence of the bronze clad pillars; Nyendael in 1702 gives a most thorough description of what was probably a recently rebuilt palace without mentioning the plaques at all, which is strong presumptive evidence for thinking that they had already been stored away in the condition in which they were found by the Expedition of 1897. The Portuguese figures which appear on many plaques wear dress of the mid-sixteenth century so that the temporal limits of this art form are fairly well defined" (Fagg 1963,33).

> On the origins of the plaque form Fagg wrote:

> "It is indeed more than likely that the plaque form itself is due to European example, since it is found, in the form of paintings and relief sculptures, all through the European tradition, whereas (being derived from the concept of mensuration) it is rare or non-existent in indigenous culture" (Fagg 1963,33)

The creation of the 'Lower Niger Industry' category may have unintentionally caused greater problems than advancement. Initially, by eliminating all the Benin sculptures that were 'stylistically'

different than the great number of works found in the city by the British Expedition of 1897, and extenso different from the Ife heads it caused a one-source tradition to be accepted as a fait accompli. Further, it helped promulgate a great inconsistency when considering Ife and Benin castings. The heads and figures excavated in Ife are believed to have been cast in the area in which they were found. There is no archaeological or other physical evidence that brass casting ever took place in Ife. There is no tradition of the skill existing except one legend which deals with the execution of the metal workers because they helped perpetuate a fraud. In Benin there did and still does exist a viable brass casting guild, oral traditions, historical and physical evidence for brass casting. The only significant difference between the finding of the Ife pieces and those of Benin is that in Ife the sculptures were found through excavation. Yet the mysterious 'Lower Niger' Benin pieces are considered most probably not to have been fabricated in the city, and to be the product of a different school with a different style. Perhaps the most serious problem is that it shunted focus away from these works as probable transition pieces or early Benin works, and the factor that Benin could have received copper alloys from more than one source. Several of the Niger (Benin) full sculptures are true bronzes of an alloy that is consistent with Tada bronze chemistry.

To postulate an entire chronology for Benin art on the absence of evidence (which in this case is the lack of a comment by Van Nyendael about the plaques) is untenable. The reporter may never have been in the specific sections of the palace where these pieces were hanging or placed, perhaps the rooms were dimly lit, or it was a typical night visit to the palace. Also, the reporter could have chosen not to comment. Assuming the wall reliefs were no longer hanging, a causal relation does not exist between this and whether or not they were still being produced, especially since they most probably served more than one function. In addition the reliefs could have been produced for others, since no evidence exists that casting was exclusively for the Oba. It is subsequently shown the large D-shaped wall plaques were produced in the eighteenth century, and perhaps later. As far as the positioning of the plaque sculptures is concerned it is quite possible they were seen either adorning the walls or ceilings of the palace in the nineteenth century (King 1822,

vol.XIII 315; Royal Gold Coast Gazette 1823).

Neither the historical nor the oral evidence points to the abandonment of the form. All of the interpreted results indicate that the eighteenth century Obas were vitally concerned with commerce. The abundance of brass and the demands of the patron, probably did cause a shift away from the heavy emphasis upon plaques in the eighteenth century. This is seen primarily in the adoption of the bas-relief technique of solid casting in the altar and shrine pieces, alloy content, and the switch to the large D-shaped plaques.

It is the next step from ivory and wood relief carving to the utilization of this form in metal when the requisite casting skills were probably available in Benin during the early or bronze period. If the thermoluminescence dates for the two D-shaped pieces reported in the Willett and Fleming (1976,140-141) are not considered and they are dated on alloy content and morphology then it can be averred that the relief sculptural form was cast in the bronze period. Another facet which stems from the Ahamman Giwa tale is that Esigie knew about metal reliefs from already existing pieces and re-instituted an old form, in a different style with expanded themes. The idea did not have to develop out of metal casting as earlier repousse could have served as prototypes. It is also possible that many of the early type bells were not cast but smithed and they also could have served. The question is of importance but at present can only be considered from its speculative aspects because of the lack of physical evidence.

The plaques under consideration in the present work were manufactured from leaded brass, and are rectangular in shape with few exceptions. Whether the Europeans suggested or re-suggested the form or the Bini were intrigued by small portable south Indian reliefs which they may have seen (fig.I:4 P.167) or there were still unknown or unconsidered influences is still very much of a wide open question, and very strongly covered with many unknowns (Lawal 1977,199 for the counter argument to Fagg's thesis).

(c) Philip J.C. Dark (1962-1975)

Professor Dark's main consideration within the Benin corpus has been the Oba memorial heads but he has made a serious effort also to classify the reliefs. The start of plaque casting in his hypothesis (Dark and Hill 1971,66-71) is dependent upon: the identification of European dress and weaponry to the mid-sixteenth century, the possibility of bearded Edo warriors fighting in the Idah war of circa 1515-1516, and being depicted on the plaques, the prohibition of firearms being supplied to the Bini (the Iwoki guild which looks after the Oba's firearms was formed in the reign of Esigie), the changeover from copper to brass manillas, and the tradition concerning the encouragement and improvement in brass work during the reign of Esigie. Greater speculation is involved with the termination date of plaque casting, ca. 1640-1690. It was reasoned that since Eresoyne's reign (ca. 1735) was one of plentiful brass, '.. and resulted in the production of complex objects with a distinct configuration of stylistic features, then one's impression is that such a configuration is different from the rich and varied iconography of the plaques. Such an impression leads to a separation of styles according to time period, and the dating of the plaques must then be prior to the Eresoyne period' (Dark and Hill 1971, 68). This latter date was modified in the 1975 paper (Dark,59) to about the first quarter of the seventeenth century. The change is probably based upon the oral tradition which recounts how the Oba gambled away the long stored treasures of the former kings (Egharevba 1968,34).

The reasoning concerning the cessation of plaque manufacture is somewhat confusing. It is understood that the authors are attempting to compare form or configuration or style between the plaques and sculpture in the round, dated in the Eresoyne period. In one sense they are comparing form or configuration with subject matter or iconography, which is opposed to form (Panofsky 1972,3). Hence the dilemma of what is actually being compared to what. If it is only a comparison of styles then one must be told exactly which plaques are being compared to what full sculpture. The conclusions are somewhat loose and appear to be all-encompassing without the necessary specifics.

Subsequently, the plaques were loosely sequenced, primarily as an adjunct, for determining the time at which the type 3 Oba memorial heads (high coral collar choker, no flanged base) were first made (Dark 1975, 59).

(d) Denis Williams (1964-1974)

The Fagg and Dark chronologies were criticized in Williams's text (1974,ch.16) where he stated:

> "We learn little by seeking to understand this art by chronologies expressed in days and months and years, for the basis of African art, even so concrete an art as that of Benin does not rest in the individual: the individual does not dictate its terms or change. But African art does change (though not necessarily develop) and it is the manner of this change which a chronology might help us glimpse. Further, it cannot be sufficient to state that such an idiom succeeded to such and such at this or that period; we should want to know why this was so, what fundamentally accounts for growth or decay in given forms, whether a rationale could be observed as governing the life of forms in time, and what was its nature if so, in short we should expect a morphology" (Williams 1974,136-137).

Williams's 'morphological approach' is embodied in a 'Benin canon' which is Lange's Law of Frontality (Kielland 1955,23) modified for two-dimensional plaques. 'In the case of plaques it is necessary to discriminate individually between the orientation of figures and to relate them all to the controlling concept, the base plane - the plane of the plaque itself - which serves as a support for the figures and in terms of which they are conceived' (Williams 1974,154). In order to effect the canon three intersecting planes must be defined: base plane, the surface of the wall relief; central plane which bisects the base plane at right angles and defines the path of vision of the spectator; median plane, individual to each figure and related to the vision of the sculptor (Williams,54). Williams cleverly invents a median plane to account for the rotation of figure volume away from the full frontal view of the spectator. Where the composition depicts more than one figure the artist treats the figures individually without any sort of thematic concept. These formulations may hold true for his post-1590 or 'modern period' but they are constantly violated in the earlier plaques. This is what Williams uses as the significant differences which classify the plaques as either 'medieval' or 'modern'. The canon is limited to the figure reliefs as it would be inapplicable in many of the leopard and fish works. It is in the animal reliefs that the Bini artist used composite views, similar to what is seen on the European musketeer series (figs. EW:1,2,3; L:5,8; FS:7-10) pp. 3-4 pp. 29,27 pp. 42-43

The earliest full figure compositions were the Europeans (ca. 1550), and the earliest plaques began around the closing years of the fifteenth century (Williams 1974,152,167). The various solutions cover the period from earliest plaques to well into the modern period. After 1642, according to Williams, the Portuguese lost interest in the Guinea coast, and this he takes as a terminus ante quem for the representation of European personages in the Bini bronzes (Williams,167).

A number of 'Triumph or Battle Plaques' were cast in the modern period and could be considered transition pieces. In these particular works there is no longer an artistic curiosity, or a '.. unifying pictorial space with its implications of recession, and the verticality of structurally independent and autonomous units exactly as they appear in the earliest castings' (Williams 1974,169).

> "This art is characterized by an inherent and impassive power, all the more impressive when its modest dimensions are remembered. Henceforth the formal principles of the Bini bronze would be subject only to refinement at the hands of artists now confident in a tradition of their own making. Style would flower in these masterpieces, perhaps the finest in all Bini art, which may be designated as of a Hieratic period, ..., works conceived in the utmost rigour and formal restraint and characterized by an inhuman idealism of absolute bilateral symmetry. Here the merely temporal is abjured, the human theme depersonalized; the movement is rendered neutral in terms of the dominant base plane, as is the treatment of anatomical detail or surface excitement of any sort; lateral rhythms set up between two or more identical figures enhance their transhuman idealism" (Williams 1974,169-171).

The writer does not mention any termination date for the wall reliefs since there is a paucity of independent data and reading a time sequence into a form sequence would be erroneous, as the variations in form may be expressive of nothing more than an artistic variation between contemporary craftsmen (Williams,175).

The Williams formulations, which depend upon the introduction of the crotal bell in 1590 (modern period) and the expulsion of the Portuguese from Ghana in 1642 by the Dutch, probably should not be taken as the definitive time indicators they were made out to be (Posnansky 1977, 287-300) as the dates are quite speculative.

Any change can be swept away under the guise of artistic variation and to use this excuse appears to be begging the issue more than meeting it squarely. It is apparent that Williams is well aware that every particularized solution to an artistic problem represents a change. These changes are cumulative and over time new or modified surface effects are observed which may include changes in dress, height of relief, volumetric modelling or possibly improvements or decay in casting technique, all without a so-called change in style. These are definite indices of temporal change and although such observations are by their very nature subjective they are still extremely valuable. It is the study of the cumulative 'artistic variations' that provide the clues of a particular culture's artistic history.

Morphology includes both form and structure. In the artistic sense structure encompasses the world of motifs, images, stories, allusions and even weltanschauung (Panofsky 1972,3-17). The heavy emphasis by Williams was on the initial section or form and the structural aspects are glossed over. The real value in this approach is that it points the way in correlating form and structure as indivisible portions of one another.

'Noticing law-like regularities is what made nature comprehensible to men' (Ishiguro 1977,241). One could take this observation one step further and aver: noticing law-like regularities is what makes the material culture or art forms of one group of people comprehensible to others. The previous attempts at noticing law-like regularities within a time period have been severely restricted by both the available information and the demarcation of parameters. Therefore one is forced yet to take another look at the corpus of Benin art and herein more particularly the wall bas-reliefs.

Chapter 8

Determination of the overall time period of plaque manufacture

Prior to any attempt to evaluate an overall time period, Benin culture, especially as related to its conceptual framework, must be quickly reviewed, in the hope of helping to provide the needed parameters and understanding of the subjectively chosen limits of the system under investigation.

(i) Divine kingship: General

There is a great deal of similarity between the organized monarchical governments of the Negro peoples of sub-Saharan Africa.

> "The king if not necessarily a god himself, was thought to descend from the gods, and was therefore separated from ordinary men by a wealth of ritual. He was rarely seen in public, commonly gave audience from behind some sort of screen, communicated essentially through spokesman, and was not seen performing such mundane functions as eating and drinking. He was the agent of the gods in controlling the use of the land on which his people descended, and determined the times of planting and harvesting and occupied the central role in the great ceremonies appropriate to these times. The fertility of the soil, the regular coming of the rains, and so the whole well being of the community were thought to be dependent upon him and his continued prosperity; his ill health was a disaster which either had to be concealed or in some cases was terminated by ritual killing. At his death, he was buried in great state together with wives and attendants. At his court there was commonly an important place for a great queen or queen-mother who was the chief female of the royal family rather than a wife. Under the king there was a hierarchy of great officials to run the court, and to impose order and tribute on the clan and village communities of his subjects. Major items of long distance trade such as gold, ivory, copper and salt were commonly royal monopolies and the royal court was the prime centre for the major craftsmen of the land, such as workers in gold and the rarer metals, weavers and musicians" (Fage 1978,40).

The advocates of the diffusion of the Egyptian model into west Africa allege that it occurred through its outpost at Kush (Fage,40). However, Fage thinks that it is more probable such weltanschauung developed from agriculture.

As the population became increasingly dependent upon agriculture the need to propitiate the spirits of land and water through the ancestors became more pronounced. The leader of each group, directly descended from the founder who contracted with the spirits for the original use of the land, became more endowed with supernatural qualities.

This evolvement of supernatural qualities tied directly to earth and water occurred over and over and is the basis of all west African divine kingships (Fage,42). If Professor Fage's analysis is correct then Egypt was only a very sophisticated and earlier example. Whether the Benin divine kingship has its antecedents in Egypt or somewhere else is buried in the mists of time. However, the Binis do claim a descendency from Egypt through the Sudan and Ile-Ife (Egharevba 1968,1).

(ii) Divine kingship: Benin

The Benin kingdom fits squarely into the parameters of west African divine kingship. The Oba is the reincarnation of one of the kings descended from Eweka I, the founder of the present dynasty. He is both god and descended from god (Bradbury 1970,40). Absolute power is vested in the king with no right of deposition. The wars of succession which are part of the Bini oral tradition are because of the primogeniture rule - the issue revolving around who was the senior son. As befits a deity the court was elaborate and supported mainly by tribute in the form of foodstuffs, land, slaves and whatever. In addition special levies could be enforced at the whim of the king.

There is a pantheon of state rituals, both public and private, throughout the Benin year in which the Oba was intimately connected, of which the most important concerned his ancestors and worship of his head (Bradbury,40). Additionally, he controlled the cults of hero deities throughout the kingdom and fixed or approved the dates of the various festivals and rites in connection with domestic cults.

It can never be said that the Oba eats, drinks, sleeps or dies. All such references must be done metaphorically, e.g. to advise that the king has died one must say something similar to Oto riorhue, the earth eats chalk, etc.

The highest ranking order of chiefs are the Uzama n'Ihiro composed of seven chiefs whose titles are hereditary. They are called the king-makers for it was the first five ranking chiefs who sent to the Oni of Ife for the king who founded the present dynasty. Included in the seven are the Ezomo, one of the two ranking war chiefs, and who on command of the Oba would lead the army, and the Edaiken, the Oba's oldest son who is the heir apparent. Each chief has his own settlement outside the city inner wall on the western side of the city (Bradbury 1970,35). In addition to their political function the Uzama were responsible for the installation of the new Oba and individually performed separate duties. Their seniority is recognized by the

position of the Uzama at the various state functions (Bradbury,36).

Directly following are the nineteen Eghaevo n'Ore, or town chiefs. The most important title is that of Iyase, who is sometimes referred to as prime minister and is either the senior war chief or ranks on the same level as the Ezomo. The city was divided into two separate sections by a wide avenue. The smaller southwestern section contained the Oba's palace while the other and much larger portion was controlled by the town chiefs. It is the Eghaevo n'Ore who on behalf of the Oba confer titles and it is the Iyase himself who makes the actual announcement. For some purposes the Iyoba or Queen Mother ranks fifth in the town chief's hieratic structure. Once the Oba is chosen she moves to Uselu outside the walls, where she retains her own court, and is never allowed to see her son. Once an individual becomes a town chief he is prohibited from living in Ogbe, the Oba's compound, and is required to move to the larger section of the city.

The third group of chiefs were the twenty-nine palace chiefs (Eghaevo n'Ogbe) who, like the town chiefs, did not hold hereditary titles. They were responsible for the Oba's household and these titles were divided among the three palace associations (otu-eguae). Generally their duties were primarily administrative both in the palace and during the large number of yearly festivals.

The most important and high ranking of the forty or fifty guilds within Benin were the brass casters. The guild was modelled along the lines of the palace associations such as being divided into age groups with a senior member or edion. The edion represented the group before the Oba, distributed the king's work, settled disputes and was a member of the guild council which administered and controlled the members. Guilds were closed entities both in the administrative and territorial sense. The individual member gained status by belonging to an elitist group. Since the majority of commissions were directly attributable to the Oba, they were considered his personal dependents. When a caster executed a royal sculpture he would live in the palace and became the responsibility of the palace associations (Ben-Amos 1971).

It is not probable that brass-casting was done exclusively for the palace or that the Oba maintained a monopoly on the necessary metal. Benin artistic influences or actual cast objects have been found among the Kalabari and Igbo of the Niger delta (Horton 1965,43; Neaher 1976,46-49), the Owo Yoruba living some 100 km. north of Benin (Poynor 1976,40-45), perhaps as far west as Ijebu Odo (Ojo 1975,48-51)

and east to the Igala on the Niger (Murray 1949,86,92). Perhaps the guild was free to accept outside work, or a group or individual had to petition the Oba for permission to have sculpture made and to be able to use the guild's artisans.

The production of sculpture for the Oba entailed a specific ritual. Oba memorial heads, for the ancestral altar, were cast on a special piece of ground with the Oba pouring the first crucible of metal (Bradbury 1970,35).

The Bini world of deities, spirits and supernatural beings was also organized along hieratic lines. Osanobua (Osa) was the creator of the universe. Like Genesis there is more than one creation tradition concerning the high god.

One of the popular versions tells how Osa sent his sons to the world, who included the first king of the Europeans. The youngest, on the advice of a bird, took along a snail shell which he overturned on the water which covered the earth. Land appeared and this brother became the first Oba, to whom the others were required to pay homage since he owned the land. Called Ogisos or sky kings, the descendents were thereafter the ruling dynasty at Benin. When they became oppressive the dynasty was overthrown and for a short interregnum the Uzama or hereditary chiefs ruled. The Oni of Ife was requested by the Binis to send them a king. Prince Oranmiyan the son or grandson of the Ife king, Oduduwa, was sent. Oranmiyan found Benin vexatious and after impregnating the daughter of the Enogie of Ego he departed. Eweka I, born of this union, is considered the founder of the modern or second dynasty.

Oranmiyan resided at Usama, while ruling Benin, and it allegedly served as the palace for the first three subsequent kings. The central installation ceremonies of a new Oba are traditionally held at this site.

Olokun the son of Osanobua is identified with the oceans which surround the earth and into which all rivers flow. The spirit world lies across the ocean and all the souls, whether belonging to the dead or those about to be born, must pass over the water. Prior to making this journey the soul is either blessed by Olokun or damned by Esu, the god of the underworld. If damned the soul is assigned to either the unlucky, or the wicked or the criminal category (Ben-Amos 1973,28). Such a concept is structured upon attributes of space and movement.

The contrast between earth and water is one of realms of power. The land is owned by the Oba and controlled through the court, chiefs and others, who all pay homage. A counterpart of the Oba is considered to be Olokun, the king of the waters, Oba n'amen. The two kings are not replicas of one another, as Olokun's power is entirely beneficial without any potential for evil.

> "In Olokun's palace there is neither red or black for all is white and holy there. The Oba of Benin is unequivocably a force for moral good, but in his role as king it is incumbent upon him to have knowledge of every skill in his realm - including witchcraft. Thus he is in touch with blackness and evil, although he uses his powers only for good. Similarly while the Oba must exhibit the cool white beneficence of Olokun, as king he must also possess the vigorous warlike masculinity of the gods of iron and thunder - 'hot' gods associated with the color red" (Ben-Amos 1973,21).

Olokun was worshipped both at private and community shrines primarily by women, because of the fertility aspect. The male counterpart was Ogun, the god of iron, since iron was a material primarily used by men. He was especially venerated by smiths, brass casters and hunters. Other major deities included Osun, connected with medicine; Ogiuwu, the god of death; and Oronmila, the divining god (Bradbury 1970,53 ff.).

On a more personal level the family's ancestors were worshipped both individually and collectively. The dead retain the same position they held in life. They look after their lineage just as the living father would look after his children. The spirits demand respect and every family is dependent upon the departed patriarchs. Since the dead are integrated within the living it is more than likely that this particular concept more than anything else within the cosmology is responsible for the ideas of mythical and perceptive space.

On a different spatial level are the hero deities, who either founded the kingdom, village, town, or introduced the particular skills whereby the descendents now earn their living. The heroes are distinguished from the ancestors by their lack of lineage connections, as usually they were not born in the community in which they are venerated. If they die it is usually in another place or they simply disappear into the earth or sky. The heroes are represented by particular totems which could be a river, plant or animal.

Personal spirits and supernatural powers also existed, e.g. ehi, the spiritual counterpart of the present real person; obo, the arm which is the power to accomplish things; uhuvu, the head, venerated as the center of judgment and luck (Bradbury 1957,57 ff.).

Still further down the hieratic structure are symbols such as the colors white, red and black. White was the symbol of luck, purity and fertility, and was the color of the dress worn by the elite for everyday occasions. Chalk or orhue is white and was widely used in Benin as a ritual item in Olokun worship, as a political device to symbolize the acceptor's authority and legitimacy of the new Oba and as a good luck charm (Omijeh 1971,117 ff.).

Both halves of the Benin universe are highly ordered vertical and horizontal stratified systems where everything and every occurrence is endowed with some characteristic totemic badge (Cassirer 1955,Vol.II, 86). The totem is the physical manifestation of a transference and translation of mythical thought concerned with spatial images and intuitions. In totemism, according to Cassirer, there is a primordial articulation of space which assimilates all existence into rigidly determined groups and classes along certain spatial directions and dividing lines. These directions and lines have more than an intuitive feeling. There is a definitive mythical accent, such as high and low, left and right, and light and dark which enables space to have an expressive character. The Bini sequence of festival and prayers, the use of various colors such as white, red and black, the hieratic classification of spirits, heroes, deities and other supernatural beings, the physical layout of the city itself into the Oba's portion and the other part, and the Oba himself where he is both head of state and the divine reincarnation of Eweka I are all examples of spatial direction and dividing lines.

> "But although the mythical intuition of space is distinguished from the abstract space of pure cognition by this foundation of individual feeling on which it rests and from which it seems inseparable, even here a universal tendency and universal function are manifested. On the whole the mythical world view effects a construction of space which though far from being identical in content, is nevertheless analogous in form to the construction of geometrical space and the building up of empirical objective 'nature'" (Cassirer 1955,Vol.II,85).

Bini mythical space and perceptive space are underpinned by the identity of essence. Here man's fate is predetermined in finished form from or prior to the moment of conception and his physical growth never varies from this constraint. Mythical space is then so structurally related to perceptive space that any concrete manifestation of what the artisan sees and feels can only be never-changing, hieratic, rigid and geometric. Since form follows structure there is not any need for

an accurate single view construction when either a composite and/or split view representation would show the subject to a better advantage. This is especially true in the representation of fishes and leopards. It may also explain the consistent full frontal figurative pose and the head to body ratio of approximately 4.5 to 1. The mathematical concepts of foreshortening, and aerial and linear perspective would not be consciously considered, as this is a functional relationship without content, and distinct from the structural format of the Bini conception of mythical and perceptive space.

In his essay on dualism in split representation Levi-Strauss (1977 reprint,260) argued that the relation between plastic and graphic elements must be simultaneously opposing and functional. These elements oppose when decoration is imposed upon the structure, and change it; and, functional because the object is always perceived in both plastic and graphic elements. However, one seriously wonders whether, in a society where representation results from an anisotropic system of perceptive and mythical space there can be a decoration-structure opposition. In the Benin world where dualism is the underlying pervading thought, decoration would appear to operate only as a complementary factor. One would hardly consider the corner low reliefs of animals, plants or figures to oppose the thematic structure of the central design, even in the extreme case where they would be interpreted as a modifying factor. If any graphical addition, whether explanatory or otherwise, is considered a change of structure (and by definition change means opposition) then the present writer would agree with the graphic-plastic opposition.

The form of the Benin sculptures is thought to have been determined by the underlying Bini cosmology, which is manifested in the hieratic, block-like, rigid, flat composition and straightforward geometric figures. If alien views were to enter a pattern then one would initially expect a resistance to change by the earlier workers. If sufficient time elapses there may be an evolvement into a third or mutant form, or one of the two forms would become predominant. In the early Christian period of Italian art (ca. 313) the

> "... most representative monuments in Rome were treated in a frankly abstract and 'primitive' style, as for example, the reliefs made immediately after that date for the Arch of Constantine. With their two dimensional compositions, their rows of block like figures, whose attitude is determined by spiritual rather than by naturalistic principles" (Kitzinger 1969 reprint,18-19).

> "During the subsequent periods these characteristics assert themselves again and again. Rigid symmetry, flat composition without perspective and clear linear design may be described as typically Latin characteristics" (Kitzinger 1969, reprint 18-19).

The shift away from classical to a more transcendental spiritual thought immediately became reflected in the sculptural forms. One of the outstanding features of early Christian art is this struggle between classical and anti-classical tendencies.

The very crucial question still remains unanswered or unanswerable: whether by imposing one's own particularized 'folk model' on the data one is not imputing to the Bini ways of symbolic thought which that culture either does not know or is completely unaware of? (Beattie 1966,66). Further, one can only speculate, whether Heisenberg's uncertainty principle may not apply because studying a culture there is an internal change being forced upon the culture and one cannot ever hope to obtain more than a prejudicial approximation.

Definitions

Benin art is a sub-category of African art which itself falls under the more general penumbra of 'primitive art'. Anthropologists tend to avoid the word art preferring phrases such as 'material and mental culture' or 'things and ideas'. These terms tend to communicate certain concepts pertaining to a work product and its associated morphology in a pre-literate society. The difficulty arises when the word 'style' and its particular handmaidens 'natural' or 'stylized' are used. Hopefully it is understood the writer is referring to a change from trompe l'oeil to more non-mimetic or rigidized shapes, with respect to time. Style may also refer to a change of content or even technique neither of which is visible to the eye. Kubler believes that 'style' does give an illusion of an unstable classed order unrestricted in time or content but never both simultaneously (1962,3). It could well be that at present there does not exist an adequate theory of style (Schapiro 1962,278-303) and the continued use of the word without formalized definitions will cause uncertainty and difficulty.

A more uniform systematic approach for time sequencing in all cultures may be what Kubler refers to an ordered development from the promorphic to the neomorphic (1962,55-56). In his definition the promorphic are the early solutions and '.. are technically simple, energetically inexpensive and expressively clear. The late or neomorphic solutions are costly, difficult, intricate, recondite and animated'

(see also Gayton & Kroeber 1927,no.24; Boas 1955; Arnheim 1974,216). In the present work style is used but only in the concept of a change of form over time, when form and content are meant then morphology is used. However, when referring to the ideas of others this delineation will not always be used because of the effort being made to preserve their work in the original meaning. In that case the thought being transmitted should be clear from the context in which it is being used.

There have been an extraordinary number of periodization schemes developed through the ages (Van der Pot 1951). If all development is considered as continuous then any period by necessity must be a subjective manifestation of the formulator's aesthetic considerations (Meyer 1901,1-42). The comment of Meyer is patently true and despite some increasing scepticism towards periodization because of the above parameters it seems to be an inherent characteristic of man which constantly re-manifests itself as the limits of scholarship expand. Without the use of periodization there is a severe restriction placed on the available diagnostic tools which permit an insight into the reasons for cumulative or discontinuous changes within the culture or by extrapolation to other cultures.

A period 'may be said to possess a "physiognomy" no less definite, though no less difficult to describe in a satisfactory manner, than a human individual' (Panofsky 1969,4). Herein, a period will be considered as the time between changes in direction. Such changes can come about by the impact of a revolutionary achievement or through the slower evolutionary changes of repetitiveness of a particular solution, and this change could either be negative or positive. In the Benin plaque temporal sequence, each time period is the result of cumulative changes in dress, modelling, height of relief and the like, plus changes in direction within the political and economic structure of Benin itself.

Every particularized solution to an artistic problem represents a change. Whether or not these individual variations can be discerned or have any particular significance in a temporal scheme is naturally subjective. It is only when the changes are marked either through evolvement or in a discontinuous sense that periods can be determined. Unfortunately the progenitor is usually faced with certain pieces which defy any tidy solution. The alternatives are either to create a scholarly fiction such as the 'Lower Niger Industry', in the hopes that further study will shed more light on these sculptures and they eventually can be placed, or to tentatively place them within a category

with some misgivings about choice, or totally disregard same. This particular problem does exist within the wall relief series, and whenever possible the 'different sculptures' were placed into an existing category according to primary subject.

The plaques have been categorized according to a pre-iconographical analysis of subject into four main categories:

I Europeans
II Inanimate objects
III Animals and plants
IV Benin personages

These categories are not temporal indicators. This particular method was chosen because it provided a convenient way of studying particularized solutions over time to an artistic problem of compositions. If there is an overriding theme to the 900 or so wall plaques it refers to the Bini recognition of two halves of the universe and its hieratic structure.

A perusal of the series quickly indicates that the plaques did not all serve the same function. Subsequent further study via a thematic analysis shows the correctness of this idea. They best could be understood if divided into classes: narrative of a particular or traditional event; ritual, cosmological; portraiture.

What Dapper's informant meant when he wrote that the wooden pillars were covered from top to bottom with scenes of war and battle deeds can only be assumed (Hodgkin 1975,160). He may have been referring to the battle plaques and the various representations of warrior chiefs and others similarly attired. If this assumption is correct, then one should be able to conclude that a great many of the plaques were in different sections of the palace according to function. It is also possible that subsequent visitors who described carved posts were also viewing metal reliefs in different sections in their hurried sojourns in the great hall of the Oba.

One cannot say with any degree of positive conviction that two-dimensional reliefs were not known during the earlier or bronze period. On morphological grounds (and in one case there exists chemical alloy data as well) the present writer cannot accept the Willett and Fleming thermoluminescence dates of the two D-shaped reliefs (1976,140,141). One of them does seem quite large to be worn as a pendant, since the fragment is 44.5 cm. high and the smaller is 38.7 cm. high. These two sculptures could be evidence of the earlier bronze period reliefs.

Additionally, bells made from bronze and morphologically consistent with the earlier Benin period pieces are known (fig.IU:1). The present work is only concerned with the rectangular and D-shaped leaded brass wall plaques.

Historical and traditional evidence coupled with chemical data are three main factors used throughout in determining the overall plaque period and the two internal periods. In the rectangular reliefs alloy content is never considered the overriding factor for placement since it is quite possible earlier works may have been remelted in order to cast the later pieces. The actual placement of a plaque in either Period I: Esigie to Akenzua I, or Period II: Eresoyne to Osemwede (?), is dependent upon morphology - the internal consistency within Benin art and the development from promorphic to neomorphic solutions.

Kingships were chosen in lieu of actual dates because of the heavy reliance of kingship lists upon oral traditions and the conflicts that do appear between the various lists (Bradbury 1973,17-43).

Historical and oral traditional evidence

The Benin kingdom started its remarkable expansion under Ewuare (ca. 1440-1473). Known as a mighty warrior and magician he is reputed to have travelled over Nigeria, Dahomey, Congo, Guinea and Ghana. When he could not use force, oral tradition speaks of how he used strategies and guile (Egharevba 1968,13-14; Jungwirth 1968,215-220). While Ewuare was busily engaged in directing or directly partaking in long distance military campaigns and consolidating power within himself the Portuguese were steadily advancing along the Guinea coast.

Portuguese voyaging down the West African coast seemed to begin in earnest some four years after the capture of Ceuta on the Moroccan coast in A.D. 1415. Whether it was the quest for gold or Prester John or some other combination of reasons that caused Prince Henry to send his ships down the coast is best left to the experts of that period of Portuguese and European history.

When the voyages started, the southern limit of the Atlantic Ocean and the west African coast was the Cape Bojador area (map 1) just below latitude 27° North. Some twelve to fifteen attempts were needed before the 'Green Sea of Darkness', as the area was popularly called, could be rounded in 1434. By the time of Henry's death in 1460 the caravels had got as far as Sierra Leone. Along with this trek was the discovery of Madeira (ca. 1419), the Azores (ca. 1439), and the

discovery and colonization of the Cape Verde group (1456-1460) (all from Boxer 1977,25 ff.).

Initially the Europeans were content to trade from their ships as they moved down the coast. This method remained throughout the history of west African exploration but it was supplemented by the feitoria, or shore-based factory. The first was established at Arguim (about 21°N.) in 1445 in an effort to divert the trans-Saharan trade. A castle was built on the site about ten years later and here the Portuguese exchanged horses, cloth, brassware and corn for gold dust, slaves and ivory. Arquim became the model for the other fortified factories which were established down the coast as far as the Moluccas (Boxer 1977,25).

Up to his death in 1460 Henry was the sole concessionaire of all west African trade. In 1469 an exclusive contract was awarded to Fernao Gomes, which required Gomes to discover one hundred leagues of the coast for each year of the contract, beginning from Sierra Leone (Blake 1942,67 ff.). By the end of 1475 (the contract had been renewed for an additional year in 1473: Blake 1942,68) the coast down to Cape St. Catherine and the islands in the Gulf of Guinea had all been discovered and partially explored (map 1).

Slaves and gold were the most sought after items. Boxer (1977,30) calls Dom João II the 'perfect prince' and a far-sighted imperialist who had a passion for the products of Africa whether they be human, animal, vegetable or mineral. The west African trade had originally been conducted from Lagos and other ports in the Algarve. However, by the end of the fifteenth century it was being channelled through the Casa da Mina, a crown office and warehouse located on the ground floor of the royal palace in Lisbon. The items which the Portuguese traded were mainly of foreign origin. Wheat came from Morocco and Europe; textiles from England, Ireland, France and Flanders plus some local cloth; brass utensils and glass beads were from Germany; oyster sheels from the Canaries (Boxer 1977,30).

In his analysis of the Portuguese on the west African coast Blake concludes that their control was limited to the fortified settlements in particular coastal areas. There were only four of these factories with a few smaller subordinate posts. Arguim was the only one until the discovery and settlement of the Cape Verde Islands. Santiago in the Cape Verde group was the entrepot for trade with the mainland between Senegal and Sierra Leone. São Jorge da Mina was perhaps the most important in all Guinea because it was used for the defence of the Mina

gold trade. São Thome had value for its sugar plantations and was the center for operations on the mainland beyond Mina around the Gulf of Guinea (Blake 1942,21).

São Jorge da Mina and São Thomé were the two Portuguese entrepots which seemed to have the greatest effect upon trade with Benin.

From São Jorge the Portuguese were able to control the Mina and Malagueta coasts. The Mina area extended some one hundred and fifty miles from Axim south-eastwards to Cape Three Points and then east-north-east to Rio da Volta (Blake 1942,40). The main fortress was located a few miles east of the Cape surrounded by ancillary trading posts at Axim, Samma and later at Accra. The Malagueta coast ran from Sierra Leone to Cape Palmas. In addition to the necessary factors it was garrisoned by a small number of cross-bowmen and bombardiers. One is reminded about the Strieder hypothesis, where he pointed out that German artillerymen were in Portugal by the fifteenth century teaching the art of brass cannon casting. One can only speculate about the possible connection between the Portuguese brass-casters and the Ahamman Giwa tradition.

Portuguese influence from the Rio da Volta to Cape St. Catherine was controlled from São Thomé (Blake 1942,57). The island was discovered by Ruy de Sequeira towards the end of 1473, the same explorer who is alleged to have visited Benin in 1472 (Egharevba 1968,17), during the reign of Ewuare. The factory at Gwato (Ughoton) on the Benin river tributary and Benin's port was controlled by the factor at São Thomé. There is a 1510 report telling of how the Benin factor assisted the island in securing slaves and pepper from the mainland (Blake,60). The São Thomé-Gwato connection is discussed in other sections in this chapter.

Ewuare's reign was remarkable not only because of the physical expansion of the empire but he also instituted far-reaching political changes. He created the Eghaevbo n'Ore (State Council) led by the Iyase, and consisting of the Esogba, Eso and Osuma, all four being town chiefs and often referred to as the ekadal'ene edo, the four pillars of Benin (Bradbury 1970,36; Egharevba 1968,17). The royal beads and scarlet cloths (ododo) were also introduced (Egharevba 1968,17).

The expansion of Benin, the concomitant movement of the Portuguese along the Guinea coast and the presence of red coral and cloth in Benin during Ewuare's reign all point to the strong probability of European trade goods reaching Benin prior to 1486. How much brass actually

reached the City from the 1440s onward, and especially in the 1470s and early 1480s (Ughoton factory was constructed by the Portuguese in 1487, Ryder 1969,33) is unknown at present.

One of the maddening difficulties in any attempt to classify Benin art is the absence of historical evidence to which one could append time sequences. The heavy reliance upon oral traditions and often conflicting kingship lists compound the problem. One is forced into a position of vague generalities and equally vague probabilities. On the question of the institution of leaded brass plaque casting, supplies of metal could well have reached Benin prior to the Portuguese presence in the City. What is doubtful is that the form fluoresced or re-fluoresced prior to a continued source such as Ughoton and a brass-caster. It is shown in subsequent sections that the earliest figurative plaques are closest to the European head to body ratio.

The creation of the council of town chiefs whose titles were not hereditary by Ewuare could be seen as a move to consolidate power into the hands of Oba and away from the Uzama or hereditary chiefs. As more town chief titles were created by succeeding kings the risk in having economic and political power shift into the council was increased. Perhaps by playing various factions against one another the Oba could retain his primacy. However, by the time of Ehengbuda (ca. 1578-1608) such a shift to the Eghaevo n'Ore seems to have taken place with the Iyase or prime minister taking over the leading role (Egharevba 1968, 27,31; Bradbury 1973,58). Such a shift could have come about by the enforcement of the primogeniture rule which forced the Uzama into primarily a ceremonial group more concerned with court ritual than with the administration of power.

The elimination of the Oba as the field general, upon Ehengbuda's death, continued the trend to isolate the Oba into becoming more of a divinity and absentee or secluded overlord. The everyday administration of the empire lay in the hands of the autonomous chiefdoms ruled by their own chiefs and councillors. These smaller Benin-modelled chiefdoms were required to send tribute to the Oba twice per year and to supply labor and soldiers when requested. Although the chiefs served at the Oba's pleasure by the time of Ehengbuda, the system was beginning to harden into a primogeniture system with the Oba only confirming in title (Egharevba 1968,32).

Ohuan, Ehengbuda's immediate successor, appears to be a transition Oba. He was either born a female (Jungwirth 1968,201-202) or was effiminate in appearance (Egharevba 1968,33-34). In the former version Ehengbuda's only child was a female and in an effort to preserve his lineage through the primogeniture rule he consulted the mother of his swordbearer (Omada), who was the chief of all the wizards and witches. She promised to change the daughter into a male and the child was subsequently killed. After 13 days of ritual, magic and witchcraft the deceased arose as Ohuan, a male, and now a fitful candidate for kingship. The Oba to prove the fitness of Ohuan caused his son to dance naked, with the son's retainers, from the Edaiken's palace at Uselu to the Oba's palace.

Upon Ehengbuda's death Ohuan inherited 'but not without reluctance' (Jungwirth,203). The Oba's mother was never raised to the rank of Queen Mother and was sent to live at Ayen, instead of the traditional residence at Uselu. Ohuan died childless, though he is purported to have owned at least 1,000 wives. Jungwirth (ibid,204) reports a short reign and Egharevba (1968,34), quite the opposite, with a kingship spanning approximately thirty three years.

The phrase 'with some reluctance' is borne out in the Egharevba account which tells of how Ohuan, when he took office, was forced to leave Benin because the Iyase rebelled and forced the new Oba to seek refuge in a neighboring village. It was several months before sufficient force could be gathered to retake Benin. Strangely, the chief was not killed but banished to Okogo, where he died and was subsequently deified (1968,34).

There is something very strange about Ohuan's reign. Dapper (Hodgkin 1975,171) relates how the new Oba usually eliminates his brothers, so that there are no rivals for the crown, and he mentions that this happened a few years ago. The incidents related in Dapper do not go past 1644 and in some instances relate back to the beginning of the seventeenth century. However, in the main they relate to events during the first twenty years of the Dutch West India Company, which was chartered in 1621 (Ryder 1969,88). The Dapper account could not have been a reference to Ohuan who was an only child. After Ohuan the kingship was rotated for six successive reigns and there could not be a passing of power to a brother of one of these kings even if he were successful in usurping the throne. Also, it would be very doubtful whether the chiefs would extend the kingship to a particular family where there was a contest of who was the older brother. Most probably the poisoning is a reference to Ehengbuda.

The elimination of Ehengbuda's brothers is in agreement with the reluctance and/or the insurrection by the Iyase once Ohuan took the throne. If Ohuan was born a female and was in reality an adopted child this ruse may have been known to the chief and Ehengbuda's brothers. The deception could have easily fooled the populace for Ehengbuda was known as a great magician. Hence, in order to ensure an orderly succession he eliminated the potential opposition. Ohuan's troublesome Iyase may have been one of the instigators in forcing the kingship to be rotated. The reference to Ohuan having no children could simply mean the king was forced, by virtue of Ehengbuda's switch, not to recognize any of his children as the legitimate heir. The failure to raise his mother to Queen Mother is either indicative of a short reign, as the Oba's mother usually assumes this title some three years after the new king's investiture, or corroboration of the above interpretation.

The years in which Ehengbuda and Ohuan reigned are speculative. Bradbury (1973,30) analyzed two references made by Dapper to an Oba Kambadje. In one account Kambadje's forces defeated 1,000 horsemen coming to attack Benin from the west, and in the second speaks of the inheritance of Kambadje's wives and son, the then reigning Oba. Bradbury believed this material was collected after the demise of Kambadje. In his analysis he concluded Kambadje was Ehengbuda and, if this is so, Ehengbuda could have died as late as the 1640s, some thirty years after Ehengbuda reigned, according to the Egharevba kingship list (1968,73), and almost to the end of the purported Ohuan period. Such lists are often unreliable as to historical dates and at best it can only be surmised that Ehengbuda was succeeded by Ohuan sometime in the first half of the seventeenth century.

Ohuan died childless and the chiefs sought a king among the royal lineages for the next six reigns. A series of uneventful kingships now ensued including that of Ahenzae who was sixteen years of age when he became Oba. His youth and age were taken advantage of, and Egharevba chronicled (1968,34) how the long stored treasures of former Obas were wasted and the royal beads were gambled away in games of dice with Osuan.

The Portuguese abandoned the factory at Ughoton by the first decade of the sixteenth century. In the second quarter of the seventeenth the Dutch and English started factories at Arbo, south of the city and on the Benin river, that may have operated until about 1653. The Dutch post was manned by two junior servants and never more than two Dutch vessels out of about five visited the post in any one year (Ryder 1969,91).

Ostensibly under Benin suzerainity, Arbo and Meiborg, another entrepot on the river, may not have been Bini settlements. A new class of trader began to emerge, one who was dependent upon the surrounding countryside rather than the Oba's largesse. The absence of coral beads on the Dutch cargo manifests in the mid-seventeenth century, though they were selling on the Guinea coast, may be indicative of a decline of the Benin empire and correlative to the Ahenzae tradition.

In 1689, a Capuchin missionary attempted to reach Benin but turned back because of the dispute the Binis were having with the Itsekiri at Warri (Ryder 1961,250). The Oba's destruction of Meiborg in 1696 is considered an effort to break the power of the traders and town chiefs who were waxing fat in their control of trade and to re-establish the dominance of the Oba (Ryder 1961,250).

Van Nyendael, who visited Benin in the opening years of the eighteenth century, commented upon the lack of skill among the artisans who practised smithing, carpentry and leather work (Hodgkin 1975,200).

The whole tenor of the oral traditions and historical evidence from the reign of Ehengbuda through the shadowy Obas of the seventeenth century indicate a general decline of the empire along with a political and economic shift into the hands of the town chiefs. The kingship itself had evolved into predominantly one of deityship. The Uzama or kingmakers provide the main ritual support. The new system did not seem to work very well because in the beginning of the eighteenth century civil war broke out once again and civil order was not restored until the reign of Akenzua I (ca. 1713).

With economic and political power now concentrated in the hands of the autonomous town chiefs, with the king no longer a warrior, and a shrinking empire, there would be no need or perhaps even a desire to embellish or aggrandize the Oba's reign through narrative or commemorative wall reliefs depicting non-existent glories. The death of Ehengbuda should be considered as the effective termination of war or battle scenes. Historically, it may have been the terminus ante quem of the European figure compositions. The ritualization of the Oba does indicate that the available brass would be shunted into representations more consistent with the kingship, such as portraiture, ritual, cosmology, and the like. The finale of Period I wall reliefs is therefore taken as the reign of Akenzua I (ca. 1713).

Period II most probably began during the first quarter of the eighteenth century. During the latter reaches of the seventeenth century Benin was wracked by civil war and the Oba was reduced to penury. Oba Ewuakpe (ca. 1700-1712) was forced to abandon Benin and only in the late stages of his reign did he return to the city (Egharevba 1968,34). His successor, under the primogeniture rule, was supposed to have been the eldest son, but for a short period the throne was usurped by the second son, Ozuere. Another civil war broke out and eventually peace was restored after the rightful heir, Akenzua I (ca. 1713-1735), was seated.

Akenzua is alleged to have been one of the richest kings ever, and because of his wealth was named Akenzua Nisonorho, Akenzua the rainy sky (Egharevba,39). He is reputed to have been the father of both the Ogie of Avbiama and the Obie of Isele-Uku. His reign coincides with an increase in the ivory and slave trade.

In the last years of the seventeenth century the Oba obliterated the trading port of Meiborg, on the Benin river. Ryder (1969,127) thinks this was an act to re-establish the power of the king. The ascendency of the town chiefs since the death of Ehengbuda had seriously curtailed the Oba's political authority, and the appeal by the Dutch to the Oba for help may have been a golden opportunity for the throne. The destruction of the entrepot in ca. 1696 not only helped to re-establish the king's power but may have dealt a severe blow to the over-independent fiadors or traders who had become established on the Benin river during the previous century.

The Dutch were impressed by the swiftness of the Oba's action. By the end of the century the Dutch West India Company was sending one or two yachts per year from Elmina to the river ports of Arbo, Ughoton and Boededoe. The increase in trade was now part of a round voyage system from Elmina to the Benin river, then to Gabon or Cape Lope Goncalvez and subsequently to the Grain Coast. Ivory was the most important commodity and a great deal most probably did come through Benin (Ryder 1969,133). In the course of a voyage from June 1696 to February 1697, the Dutch ship 'Nactegaal' collected 13,785 pounds of ivory tusks, 2,222 pounds of scrivilios (small tusks), 20 aums of palm oil, 558 pounds of wax and 11,415 pounds of peppers (Ryder,133). Trade in cloths had fallen, due in some part to the now stronger Portuguese competition. They were beginning to re-appear from São Thomé and were known to be trading in slaves, ivory and cloth (Ryder,129).

In 1704 the Dutch West India Company started discussions with the chiefs and governors of Arbo about the possibility of re-opening the factory. Since the Dutch did not find it necessary to discuss the matter with the Oba, it is thought the Oba lost control of the river below Ughoton creek, and the chiefs of the villages were no longer appointed by the Oba. Historical evidence seems to agree with the tradition of Oba Ewuakpe being forced to quit Benin and the resulting civil war within the Benin kingdom.

The factory at Arbo was re-established in 1705 by the Dutch and they burned the entrepot shortly thereafter, apparently because of a dispute over credit trading. Dutch activity then ceased until 1713, when a ship once again entered the river and commenced trading at Ughoton. This could have been in response to Akenzua I's request for the re-initiation of trade and the re-establishment of a factory within Benin-controlled territory. This would very neatly circumvent the lower river traders, whom Benin no longer controlled, and help establish the overlordship of Benin. A written agreement was signed between the Company and the Oba in August 1715 and for almost a year relations were amicable, despite disagreements over credit and prices (Ryder 1969,145). The Dutch West India Company was now primarily interested in gum and redwood. The Oba agreed to supply these commodities, whether or not a ship was present awaiting loading of cargo, by delivering these items to their factory at Ughoton. The Oba balked at granting the Dutch a monopoly, and the rights of free trade remained.

In October 1715, the Ughoton factor purchased 11,176 pounds of tusks, 5,200 pounds of scrivilios, 8,600 pounds of gum and 11,200 pounds of redwood (Ryder,142). The Dutch were dissatisfied with the cloth credit trade and the gum and redwood exchange rates, and therefore tried to re-negotiate these items. Akenzua I, now firmly on the throne, forced the Ughoton factor to abandon his Director-General's directive. By 1717 beads and manillas were almost unsaleable. 'In their place came brass and copper pans known as 'neptunes'. These ranged in size from the so-called Spanish neptunes with a diameter of one foot or less, to dishes weighing eight pounds. Of the 4,631 neptunes that Van Naerssen (the Dutch factor) brought to Benin only 419 pounds remained unsold in October, and the under-clerk who took over the factory asked for another 10,000 pounds. In 1717 trade virtually came to a standstill when the factor exhausted his stock of neptunes and cowries..... .' (Ryder 1969,144. Brackets mine).

The vicissitudes of the European market prices in gum and redwood and the Benin-Dutch relationship caused trade to fluctuate between 1717-1721, and in 1722 the Ughoton factor sent out 33,359 pounds of gum and 161,082 pounds of redwood which the factory had accumulated.

The Dutch awoke to the slave trade with Benin in 1721, but for the first few subsequent years they still maintained the bulk of their trade in ivory and redwood, plus whatever numbers of cloths were foisted upon them by the Oba. From 1724 on, the bulk of trade remained in ivory and slaves, with an overall decreasing volume. The disappearing fortunes of the West India Company, and the continued growth of the lower river kingdoms such as the Itsekiri, forced an abandonment of the Ughoton factory, ca. 1738, and trade terminated with Benin in 1741 (Ryder 1969,195).

The slave trade from the Bight of Biafra is conservatively estimated at 4,500 slaves per annum for the first three decades of the eighteenth century (Northrup 1978,54). After the 1730s trade sharply increased to about 7,100 per annum, peaking in the 1790s to about 17,400 per year (ibid,54). There is no evidence that Benin ever engaged in large scale slave trading, probably because of the difficulty in filling the requirements of the European slavers within the necessary short time a ship could remain in the unhealthy climate, and the monopolizing of the trade by the lower river tribes. Further, the Oba was very reluctant to sell males and this may have been a contributing factor. By the 1730s English slavers out of Liverpool were trading on the Guinea coast for both slaves and ivory. In the mid-eighteenth century an English vessel had to spend four and a half months collecting 261 slaves from Benin. The situation had not changed by the late part of the century when English ships purchased over 19,000 slaves in the eastern delta of Nigeria compared with 1,000 slaves on the Benin river (Ryder 1969,198).

No doubt Akenzua and his successors, Eresoyen and Akengbuda (ca. 1713 through ca. 1804), all engaged in the trade. The usual civil wars and rebellions occurred in these reigns and it would only be a natural outcome to sell the dissidents into slavery especially when a market existed. This is very speculative as there may well have been a prohibition against the Oba selling his own people. The absence of direct large scale slave trading would not of itself hamper supplies of brass and other commodities from reaching Benin. Whatever slaves and ivories were collected could be passed south in exchange for the neptunes and other brass materials (Latham 1973,26).

The reigns of Akenzua I and Eresoyen were periods of plenty. The oral traditions specifically mention how Eresoyen had a brass stool made which is a copy of the stool given by the King of Portugal in the early sixteenth century to the Benin Oba (Egharevba 1968,40). Both of these Obas also introduced new titles and festivities. The introduction of large quantities of brass during the reigns of these two powerful Obas strongly indicates a renascence of brass casting. There is no evidence which indicates the bas-relief wall plaques were not made during this period. The richness of the Obas and their creating of new titles, and Eresoyen duplicating the brass stool, would strongly indicate the contrary. Here were two men sure of their power and exercising it, especially Akenzua I who had concluded favorable written trade agreements with the Dutch and was seeing, in addition, a resurgence of Portuguese trade. Not to re-institute wall plaque manufacture devoted to the glory of the Oba and his court would seem completely incongruous with his other actions. The plaque would be one of the most positive methods an Oba could employ to ensure that the glory of his reign would be known to future kings.

Portuguese activity again declined during the latter half of the eighteenth century. 'Of 74 ships which entered the harbor of Principe between 1760 and 1771 none was bound from Benin; nor did any Portuguese vessel from that river call at São Thomé between 1772 and 1774, though the island was visited by a number of foreign ships coming from Benin in those years' (Ryder 1969,198).

For an account of late eighteenth century contact with Benin one is forced to rely heavily upon the notes and reminiscences of Captain J.F. Landolphe. This account is weakened because it was compiled by another some 30 years after the events described, and Landolphe harbored an enmity towards the English for having burned his factory on the Benin river (Ryder 1969,198-199).

Landolphe first came to Benin in 1769 and 1771, as a mariner aboard a French vessel which traded on the Benin river for dyewoods, ivory, cloths, gum and palm oil (Quesne 1823,vol.I,50-51). It was not until 1776 that Landolphe's scheme for a French factory at Ughoton received European support. His French backers gave him the command of a ship and specifically charged the Captain to commence the new factory. Returning to Ughoton in 1778 Landolphe, according to Bini protocol, was required to visit the Oba with the usual gifts, but before reaching the city proper he stopped to visit the Bini Ezomo. Landolphe reported that this hereditary war chief was as powerful as the Oba and the richest man in Benin. The Ezomo was believed to own some 10,000 slaves which he

never sold, and in the time of war could muster some 50,000 men (Quesne,vol.I,95-96). The refusal of the Ezomo to sell his slaves may be an indication of the Benin attitude towards the slave trade as being secondary to prestige and the emoluments of power. Negotiations were conducted by Landolphe with the Oba at night and in secret.

The answer to Landolphe's request was swift. He was taken by four veadors to the Oba who sat on a throne which stood upon a raised dais in a room some sixty feet long, and surrounded by his full council of chiefs. Later that day, to celebrate the Bini assent, a ceremony to Olokun, the God of the Sea, was held, attended by the Oba and thousands of his subjects. Apparently once political and economic power was regained by the Oba in the opening years of Akenzua's reign it remained in his hands, and was controlled by the Oba through the Ezomo.

Landolphe suddenly abandoned the Ughoton enterprise without having ever constructed a factory. He claimed the unhealthy clime was decimating his crew and he set sail for the mouth of the river. The ship failed to negotiate the bar and was forced back. When the vessel could cross the bar the winds had shifted from the southwest forcing a return into the river and requiring Landolphe to spend the rainy season in the delta area (Quesne 1823,vol.I,129).

The Itsekiris controlled the lower portion of the Benin river but not without opposition from the neighboring Ijos. The Ijos may have been the maritime arm of the Benin Oba (Ryder 1969,214). Landolphe returned to Benin in 1783 and in 1786 with three ships under his command. His view had shifted away from the factory at Ughoton to an Itsekiri area near the mouth of the river. In the last days of 1786 or the first months of 1787 a factory was constructed, a cannon shot away from the Itsekiri village of Bobi. Landolphe subsequently returned to Benin and told the Oba he thought a trade entrepot near the mouth of the river would be not only healthier for the European factors but also provide increased trade. The Oba requested the tributary Ijo not to molest the French (Quesne,vol.II,40). In 1787 the French attempted to have the Oba sign a commercial treaty along the lines of the Dutch pact over a half century previous. The treaty was never concluded and Landolphe returned to Bobi where he stayed until his factory was destroyed by the English in 1792 (Ryder 1969,224).

In the last decade of the eighteenth and first decades of the nineteenth century slaves were regularly bought from Benin, though not in the quantity of past years (Ryder 1969,228). Trade with Benin still remained difficult because of the long waiting times in the malaria and

yellow fever Ughoton area, and the fact that the river could only accommodate smaller light draught vessels. The transfer of trade to the mouth of the river and the Lagos area did not spell the demise of Benin economic power. The Oba exercised some control over the Ijo, and the Lagos area still retained its tributary function to Benin. The Governor of Principe referred to Lagos in 1811 as the port of Benin (Ryder 1969,229). The prohibition of external slave trading by England, Spain and Portugal in the opening decades of the nineteenth century no doubt severely diminished the volume of trade directly with Benin. It would have been very foolish to try and run the English sea patrol when one was literally in a cul-de-sac.

The palm oil trade became the dominant item and by the mid-nineteenth century the English had factories near the mouth of the Benin river and were exporting in excess of 2,500 tons of oil per year (Ryder 1969,239). The Itsekiri kingdom broke up with the demise of the slave trade. Benin, somewhat isolated, still obtained tribute from Lagos as late as the 1850s and from the Uwangue family, which was the most powerful group on the Benin river (ibid,244). In the 1850s Benin underwent another succession struggle and when Burton visited the city in 1862 he was told the war had been going on for the past ten years (Burton 1865,415).

The three eighteenth century kings, Akenzua I, Eresoyen and Akengbuda, appear from historical and traditional evidence to have evinced a strong interest in commerce, and to be able to wield the necessary political control to pursue this interest. Though Benin did not directly control the lower section of the Benin river, it still was an important factor in trade because of the Ijo providing competition to the Itsekiri and their tributary at Lagos. Ships still came to Ughoton and it was only during the halcyon years of the slave trade, about the middle of the eighteenth century, that the lower river kingdoms reached prominence. Benin was never completely free of either internal strife or wars fought to retain or secure tribute.

Akengbuda (ca. 1750) fought a successful war against Oboro-Uku and then had to subdue the victorious general who subsequently attacked Benin City (Egharevba 1968,41). Civil war again broke out in the beginning years of the nineteenth century, during the reign of Obanosa (ca. 1804). Obanosa vanquished his internal enemies and managed to somewhat enlarge the kingdom by conquering a town in the Owo district (Egharevba,42). In the reign of Osemwede (ca. 1816-1847) the kingdom expanded north to Akure and again to Otun, where the Binis forced the indigenous Ekiti Yorubas to pay tribute. The demise of the river market

(and before the resurgence of Benin trade in palm-oil) could have forced the Oba again to look north to the Niger area in the hope of making an indentation in the overland trade.

There always seems to have been a relationship with the Niger area and even a bit further north to the Hausa. Landolphe (Quesne 1823, vol.II,85-88) commented upon men lighter in color and with straighter hair coming to his factory. The Bini told Landolphe that trade between Benin and the home area of these strangers exceeded that between themselves and the Europeans. The lighter skinned visitors told how they were capable of making weapons and that boats comparable to Landolphe's smaller craft came over a great sea to their capital city. Ryder (1969, 225) discounts the claim that these lighter skinned men were Yoruba but thinks they were probably Hausa. The visit took place during the last decade or so of the eighteenth century but one cannot help thinking that such a visit could have been the latest in a continuing trade which had been going on for centuries. If this rearward extrapolation is correct the Westermann-Struck-Sölken thesis about the origins of Ahamman Giwa gains more credence.

The re-emergence of a strong Oba, concerned with politics and economics, and the Ezomo or war chief, plus a tendency to expand the kingdom, most probably meant a continuing increase or steady flow of brass supplies. It could have also indicated a shift away from the rectangular plaques and more into three dimensional altar and shrine pieces and the more ornate and larger Oba memorial heads. There is nothing in either the oral traditions or historical evidence which would indicate the two-dimensional wall relief was permanently terminated prior to the reign of Akenzua I. The very ornate and elaborate high relief, and cylindrically volumed reliefs, e.g. those which are similar in structure to the full sculpture, are Period II castings.

The bas-relief wall plaques compared with the Oba memorial heads

The earliest Benin wall plaques capable of being dated are the European figurative representations (Category I) and the 'War or Battle Scenes' (Category IVb). These reliefs are dated elsewhere to have started during the second third of the sixteenth century, either in the reign of Esigie or Orhogbua. It is possible, considering only chemical analyses, for the plaques to have begun in the fifteenth century. If these sculptures were remelted at a later date there would be no way of knowing, unless a morphological comparison could be made to known fifteenth century sculptures. Since the wall reliefs performed different functions it would be logical to assume that the earlier ancestor or

shrine compositions, either in bas-relief or full sculpture form, would be more inviolate to the melting pot, and provide a possible basis for comparison.

Category II, Inanimate Objects, must be rejected for comparative purposes. These are basic geometric forms and any such comparison to other Benin pieces would be likely to result in observed differences which are more imagined than real. Category I, Europeans, is dated on other grounds and provides more of a check on the internal chronology than a comparison with full sculpture. These pieces are compared to several fully sculptured European compositions in order to show the disparity in time between the Category I plaques and the full sculptures and possibly to indicate a shift in emphasis from plaque manufacture to work in the round.

Category III, Plants and Animals, are debatable for comparative analysis because they are a small group and morphologically, with a few exceptions, the range is not great enough to initially warrant a comprehensive comparison.

The obvious comparison is with Category IV, Benin Personages, because of the large number of pieces and their greater stylistic variety. The only two Benin metal castings dated earlier than the sixteenth century are: the 12.4 cm. high 'Oni of Ife' (TL of A.D. 1420±60) and the 'Ram Head' mask (TL of A.D. 1515±55) (Willett and Fleming 1976,140-142). Stylistically the Oni and to a lesser extent the pendant masks are not comparable to the bas-reliefs. The ram is a true bronze with a Zn/Pb of 0.37 (Willett and Fleming 1976,142) which is approximately in the range of the bronze plaques (Appendix 5). Also, the upper date of the pendant is sixteenth century.

The Ife-Benin transfer has been examined in an earlier chapter and rejected. The only other comparison which could be made to determine the bottom limit or earliest date for the manufacture of plaques is the Tada 'Gara' figure (TL of A.D. 1365±55, Willett and Fleming 1976,142). The 'Gara' is a true bronze (Shaw 1969,98) with a Zn/Pb of 3.47 and 3.40 and Sb/As of 0.48 and 0.68. When the ratios are compared to the bronze wall reliefs (Appendix 5) they are roughly within the same range (Zn/Pb of 0.49 to 1.14; Sb/As of 1 to 2.90) but the individual element percentages are somewhat less correlative. The agreement does point to a later remelting. There are certain morphological affinities between the two, especially in the neck jewellery, pot helmet and disc on the forehead (see von Luschan 1919,Abb.146). A direct Benin plaque-Tada relationship is, for the moment, very problematical and must be eliminated from consideration.

The earliest Oba memorial heads, Dark's type 1, supposedly started in the reign of Oba Oguola, and the type 2, rolled collar heads are dated from Esigie's reign (Dark 1973,7). The type 1, those closest in style to the Ife heads, with coral choker up to the chin, are seen on the plaques (figs. Heads:1). The chemical data are predominantly consistent with fifteenth and sixteenth century European leaded brasses (Table I). There is a type 1 sculpture (British Museum 1979,n.y.p.) which is a true bronze, with the following ratios: Zn/Pb of 1.3, 0.86, 1.9 (this last sample was from a patch); Sb/As 1.0, 0.55, 1.0; Sn/Pb of 8.75, 11.86, 2.74. The Sn/Pb of the three bronze plaques are 3.3, 3.45, 4.6. A comparison between the two-dimensional sculptures and the type 1 head indicate no similarity in alloy content. Possible correlation could exist between the Benin type 1 and the Tada bronzes (see Table I). If these pieces are in truth correlative in alloy content then it would indicate either the type 1 heads began prior to the time of European brass arriving in Benin or an earlier bronze was remelted to fabricate the later work (see Appendix II for British Museum data, especially M.Reg.97.12-17.3).

If the type 1 head was made during the Oguola reign (ca. 1280 or 1380) it should have been either cast from bronze or if there was an Ife-Benin relationship one would expect Ife materials to have been used. One possibility may or may not be sufficient information to confirm a theory concerning a starting date for the Dark type 1 heads. What does seem more probable, if it is not a remelted bronze casting made in the sixteenth century, is that it was remelted from earlier materials and cast during the time of Ozolua. It was in this reign that trophy heads were cast (Egharevba 1968,25). Ben-Amos is of the opinion that Dark type 1 heads are not Oba memorial works but rather the trophy and altar pieces reported in Egharevba (Personal communication, 1979). This would move the start of the type 1 heads forward either one or two centuries, and more in line with the second or brass period and the wall plaques.

The type 2, or rolled collar heads, according to Dark (1973,9), were made over a short period of some fifty to seventy-five years. He suggests there may be a relationship between these pieces and several of the Queen Mother heads because of the similarities in the modelling of the full cheeks and the eyes. Also, an affinity might exist between the head and the plaques with the circle-crossed motif (Dark 1975,40). The only analysis of a type 2 head shows a Zn/Pb of 5.4 and Sb/As of 1.58. The minor elements of tin, nickel, arsenic and antimony are also consistent with the leaded brasses used in the bas-relief wall plaques (Table I).

Two Queen Mother heads, without flanged bases, appear to be a mixture of leaded brass and the earlier bronze. The Berlin sculpture (III C 12507; von Luschan 1919,Tafel 52,52b) contains 2.0 percent zinc, 0.8 percent lead and 2.2 percent tin. The one in the British Museum (M.Reg. 97.10-11.1; Foreman and Dark 1960,pls.65-67) has 4.5 percent zinc, 1.5 percent lead and 2.6 percent tin. The similarity in modelling noticed by Dark and the fact of the Queen Mother heads being a mixed bag of alloy material and possibly made a bit earlier than the type 2 could strengthen von Luschan's labelling of these pieces as representing 'women'.

Professor Dark in his lengthy 1975 paper (pp.25-103) reiterated his earlier published work in which he created five major categories or types of Oba memorial heads. The types were differentiated primarily upon observable physical characteristics such as height of coral neck choker, cap and/or hair style and whether or not there was a flanged base. In the type 3 configuration '...the collar is higher than in type 1, hides the neck and covers the chin to the level of the lower lip; the modelling of the neck and mandible is thus not only obscured but not considered, being absorbed into the concept of the choker as a round cylindrical form.' (Dark 1975,32-33). Heads of type 3 were traditionally assigned to the time or Eresoyne but Dark discounts this tradition and assigns this type of head to the reigns of either Orhogbua or Ehengbuda (last quarter of the sixteenth century) through the kingship of Akenzua I (ca. 1713-1735) (Fig.Heads:3) p.169)

These heads are divided into three groups: sub-type 1 has two coral clusters on each side of the cap and started being cast during the last quarter of the sixteenth century; sub-type 2, contains two coral clusters on the left side and only one on the right and most probably began during the Ohuan period (ca. 1610) or his immediate successor Ohenzae (ca. 1641) and were cast during the remainder of the seventeenth century; sub-type 3 is distinguished by its grossness and also has two pairs of coral clusters. The third version was cast during the reigns of Ozuere (ca. 1712) and Akenzua I (ca. 1713-1735) (Dark 1973,10-11). The chemical analyses of sub-types 1 and 2 are very consistent with Benin plaque materials (Bauer 1975,35; Wolf 1965,245) and sub-type 3 has an alloy content which matches the brasses used in the types 4 and 5 heads (Fröhlich 1966,308; Werner 1970,138; Appendix 2; compare to central figure CNH:5) p.67)

Chemical analyses of two type 3 heads (BM:M.Reg.97.12-17.2 and BM:M.Reg.1903.10-22.4) indicate Zn/Pb and Sb/As ratios of 5.04-3.89 and 0.56-5.0 and for the second sculpture 2.43 and 4.17. Thermoluminescence dates were 1682±30 and 1532±60 (BM 1979, unpublished, see Foreman and Dark 1960,pl.68,71,72). Both are sub-types 2. If the thermoluminescence dating is correct then it would indicate that the placement of the clusters is nothing more than an artistic variant and cannot be used for time sequencing.

Using the combination of the alloy content and the thermoluminescence dates it can be concluded that types 1, 2 and the first two sub-types of type 3 were cast during the plaque period. According to Dark's head chronology this should be up to the end of the seventeenth century. However, according to Dark and Fagg the plaques were no longer cast after 1640 or 1650. This is coincident with the reign of Ohenzae (Egharevba 1968,73). It was during this kingship that the long-stored treasures of former kings were gambled away (Egharevba,27). In 1971 Dark wrote:

> "If it is accepted that the reign of Erensonye, from 1735 on, was a time of an "abundance of brass" and resulted in the production of a complex of objects with a distinct configuration of stylistic features, then one's impression is that such a configuration is different from the rich and varied iconography of the plaques. Such an impression leads to a separation of styles according to time period, and the dating of the plaques must then be prior to the Eresonye period" (Dark and Hill 1971,68)

The agreement in alloy content between these type 3 heads and the plaques may be taken as indicative that the reliefs were cast at least to the end of the seventeenth century. Even if Dark is correct about the low level of artistic production between the reigns of Ohenzae and Akenzua I this would not be definitive evidence of the complete abandonment of this form in favor of using the available brass to manufacture the Oba memorial heads.

The rich and varied iconography on the plaques shows that they served more than a simple narrative and/or commemorative function and that they were designed simply to hang in the great hall of the Oba. The significance of many of the animal, inanimate objects and the large D-shaped and rectangular Oba plaques points rather conclusively to the idea that in some cases the reliefs were shrine and altar pieces. With the increasing isolation of the Oba, forcing him more and more into the role of a deity, one would think plaque casting would continue but with a shift in emphasis in subject matter.

The mid-sixteenth century thermoluminescence date tends to confirm the Ben-Amos thinking of the so-called earlier type 1 and 2 heads as trophy works.

The type 4, Oba heads (fig. Heads:4), with the flanged base and ancillary sculpture on this base varies in overall height from about 60 cms. to 105 cms. They were allegedly introduced during the reign of Eresoyne (ca. 1735). The introduction of the base, according to Dark, would show the availability of more brass permitting the heavier and taller heads to be manufactured (Dark 1975,42). Since tradition recounts that Eresoyne's reign was one of plentiful brass these heads were assigned to this period. The fabrication of taller heads with bases may have been the result of not only the introduction of plentiful brass but also a logical development in Bini art.

It has always been taken to mean that the hole atop the head in types 1, 2 and 3 Oba heads were for the insertion of the large size ivory tusk. This may or may not have been so. It is quite possible the hole originally served as a core anchoring mechanism, tying the core directly to the investment. This would prevent mould shift.

The head (uhumwu) is the seat of thinking (iroro), judgment (enwae) and will or character (exoe). The usual rite concerning the head is to bless it, first thanking it for survival and prosperity, and then asking it for favors (Bradbury 1973,263). The welfare of the entire nation depends upon the Oba's head which is the object of worship at the main yearly ritual (Bradbury,263). The veneration of the head is so intimately connected with ancestor worship and the concomitant receipt of gifts and offerings, one can only wonder what purpose the insertion of a large ivory would accomplish on the type 1 heads. The relief carvings are not commemorative of battles or wars. Perhaps the hole was not only a receptacle for gifts and offerings but also the index of the transference of the judgement, thinking and will of the ancestor to the other world.

The original purpose is by no means clear. The increased availability of brass permitted the artisans to produce larger and better balanced sculptures for the insertion of larger offerings and perhaps now the tusks. This would be a better correlation to the abstract elephant's trunk modelled on the base of the larger heads.

In 1975 Dark, in promulgating his chronology of the Oba heads, stated:

"The main anchor points deriving from oral history are:

1. The two wings to the beaded cap depicted on type 5 heads are said to have been introduced by King Osemwede, the thirty-fourth king of the present dynasty.

2. In the reign of Eresonye, the thirtieth king "there was an abundance of brass" (Dark 1975,54).

The type 4 Oba head is also divided into three sub-types. The first and second have the ikao incisions on the forehead (Dark 1973, pl.26,ill.54). The major difference between 1 and 2 is that on sub-type 1 the high coral neck choker was made from lozenge-shaped beads (von Luschan 1919,Taf.63b.) only during the reign of Eresonye. Sub-type 2 extended through Akengbuda (ca. 1750). The third sub-type, without the ikao inserts was produced during the reigns of Obanosa (ca. 1804) and Ogbebo (ca. 1816) (Dark 1973,12).

The type 5 heads (figs. Heads:5,5a) (p.171) also have the high coral choker, flanged base, and additionally the winged coral cap (abegan) and side spectacles (aitolaekpengh). These sculptures were cast from the reign of Osemwede (ca. 1816) through Ovonramwen (ca. 1888) (Dark 1973,12).

The zinc content of eighteenth century European statuary brass increases dramatically, with smaller increases in arsenic, and a decrease in tin and antimony, plus a significant lessening of the lead content (Werner 1977,170-196, von Bibra 1869,203-205). This change is reflected in the materials used in the Benin altar pieces (von Luschan 1919,Taf.79-85; see Appendix 2 for alloy content data), the late type 3, type 4 and 5 Oba memorial heads and the D-shaped wall plaques. This change reinforces Professor Dark's chronology of the large type 3, 4 and 5 heads. Thermoluminescence dating of a sub-type 3 type 4 piece (Dark 1973,pl.26,ill.55; BM:1944.Af.4.2) is A.D. 1737$\pm$30 (BM 1979, unpublished, Appendix 3). It was believed that this head may have been cast by Ogbebo (ca. 1816) for his father Obanosa (Dark 1973,95). Chemical alloy data of the head are very consistent with eighteenth century high zinc European statuary brass (Appendix 2).

The alloy content of the rectangular plaques is consistent with fifteenth and sixteenth century statuary brass. A comparison of plaques WBC:1, 2, 3 and 6 (pp.90, 93, 91, 92, 94) with the larger variety type 4 heads (sub-types 2 and 3) shows the same or very similar dress: high coral choker, beaded cap with large attached beads, side plaits and flanged base. The base on the plaques is the wide flange which supports the upturned leopards teeth. The teeth would not be found on the heads, because by this time the Oba was no longer a warrior, and the base could be better

utilized as a mechanism for displaying symbols of rank, such as the leopard: inconography which is much more appropriate to a king and an ancestor memorial head.

The introduction of type 5 heads is dependent upon the tradition of the winged cap having been invented by Oba Osemweded (ca. 1816). Dark claims the Oba invented the double winged cap and Fagg (1963,35) mentions only 'winged' cap. Such a distinction, in the opinion of the present writer, is superfluous. Either Osemwede invented the wing or he did not. The number of such attachments is only a variant. If this tradition can be relied upon, then plaque WBC:3 (details 3a., b, and c.) must also be a nineteenth century work. The caps on the Oba heads and the warrior chief are the same. They have the same criss-cross or 'X' shaped pattern, similar beaded side plaits and cap clusters. The difference is that the warrior chief is wearing only one wing. This is the type of distinction one would expect between a king and an important Bini personage such as the Ezomo or Iyase.

Thermoluminescence dating of a type 5 Oba head is 1817$\pm$15 (BM: 1944.Af.4.2; Fagg 1963,15; BM 1979, unpublished).

The facial planar angles between the two comparative pieces show that the plaque was a late work. An examination of the reverse side of the relief (fig. WBC:3b) shows almost the entire central figure; the shield and the low corner reliefs were roughly modelled on the core. The overall attention to detail, volumetric modelling of the figures, weapons, instruments, shield, arms and hands, and the success in thin section casting can only be considered as indicative of a late neomorphic solution. This type of warrior group composition is generally a late development and appears to be a sort of traditional portrait. It would therefore be incongruous to represent the figures in any style or morphology other than in traditional attire.

The obvious differences in chemical content between the winged cap plaque and the type 5 heads (Appendix 2) neither vitiates nor weakens the conclusion that this plaque is most probably a contemporary casting to either the late type 4 or beginning type 5 heads. This is a narrative or commemorative work and would not have the same religious significance as shrine and altar pieces. The remelting of such compositions to formulate a later relief would not violate any of the Bini canons. In fact, the very opposite effect may have been produced, in that recasting again confirms the power and the glory of the Oba through another reincarnation cycle. On a more mundane level the Oba may have wanted to honor a ranking Bini personage and advised the casters to use

whatever they had on hand among the broken or poorly cast pieces.

Professor Dark's chronology hangs on his acceptance of particular well known oral traditions, such as the increase in brass during the reign of Eresonye and Osemwede and the winged cap. Paula Ben-Amos (1979, personal communication) advised that there are other traditions which attribute the winged cap to Obanosa (ca. 1804) or Ewuare (ca. 1440). One cannot argue about the difference of approximately twelve years between Obanosa and Osemwede. However, there is a difference in some four hundred years between Ewuare and Osemwede. It is very possible that it was an Ewuare development, since he encouraged ivory and wood relief carving. Examination of ivory does indicate the Oba wearing a cap similar to the winged attachment (von Luschan 1919, Abb. 620,624,763,825,844; Schweeger-Hefel 1957,Faltaffel I.).

If the Fagg and Dark chronological hypothesis, based on the Osemwede tradition, is correct then the winged cap warrior plaque (WBC:3) pp. 91, 92 must be a nineteenth century work. Also, if the plaques were not produced after the first quarter of the seventeenth century there is a time lag of approximately one hundred years between the manufacture of the last plaque and the type 4 heads, and two hundred years or longer between the winged cap warrior relief and the type 5 heads. The chronology of the Oba heads spans almost five hundred years, while the plaques progressed from type 1 through type 5 morphology in one hundred years or less. Both sculptural forms were done by the same guild and in many cases the very same individuals. It is very difficult to accept an explanation of wall relief morphology becoming an immediately forgotten form. The plaques were seen by Dapper's informant sometime in the 1640s and possibly were still hanging in the nineteenth century. If the above did occur then one would be observing a redevelopment of the same morphology dependent upon the sculptural form and/or media being used. There would be no internal consistency within Benin art, especially in metal casting, since the morphology would be different between relief and full sculptural pieces.

The more plausible approach is to reject the Osemwede tradition and re-align the dating of the late type 3 and types 4 and 5 heads with their chemical alloy contents. This would have the effect of moving these heads into a period beginning with the first quarter of the eighteenth century, and would be more in line with the plaques. It would also mean that several styles of Oba heads were manufactured concurrently and not sequentially. This is also more in keeping with the plaque compositions.

Comparison of Wall Bas-Reliefs to Other Benin Sculptures

(a) Heraldic or D-shaped plaques

The fragment of a 44.5 cm. high D-shaped plaque has been thermoluminescence dated to A.D. 1560±40 (Willett and Fleming 1976, 140-141, pl.8). It was found during the removal of a wall in the Benin palace along with a 38.7 cm. high D-shaped pectoral relief which was also thermoluminescence dated by the same authors to A.D. 1600±35. The latter piece is a true bronze containing about 10 percent tin, less than 0.3 percent zinc and about 1 percent lead (Willett and Fleming,140). The absence of mounting lugs or loops on the 44.5 cm. fragment increases the difficulty in trying to determine whether it was originally designed to be worn or slated to be a shrine or altar work. The thinness of the casting, rectangular slots and the 6 cm. variation from the other relief does not preclude it from also being used as an aegis.

The D-shaped or heraldic form reliefs (figs. pp.56-58 D:1,2,3) are quite possibly later versions of the bronze fragment. These pieces also depict a fish legged Oba with arm supporters. The sizes are also about the same (D:1 is 40 x 29 cms. and D:2 is 42 x 33 cms.). The alloy contents (D:1,BM:M.Reg.73; D:2,Berlin III C 7653; D:3, Detroit 72.435, no alloy information) are very consistent with the later brasses and with each other; both have 27 percent zinc and related lead, arsenic and tin (Appendix 2).

The coral dress, altar of the hand iconography and plaited horizontal basal bands are not observed on the fragments but do bear a strong similarity to the symbolism seen on the bases of the type 4 and 5 heads as well as several altar pieces (figs. Heads: pp.170-171 4,5,5a.; Berlin III C 8176, III C 8198, III C 8203; von Luschan 1919,Taf.70,79-81). In addition plaque CNH:4 (BM:M.Reg.99.6-10.2) on which two figures wearing beaded dresses and finial caps are holding a blacksmith's hammer in their left hands has an alloy content similar to plaques D:1 and 2. Plaque CNH:5A (p.67) (BM:M.Reg.1900-7-20.2) also D-shaped does not have the high zinc content of the others but is a leaded brass (Appendix 2).

The correlation in alloy content, iconography and morphology of plaques D:1, 2 and most probably 3 with the type 4 and 5 heads and many of the altar pieces of the same vintage (von Luschan 1919,Taf.70,79-81) are sufficient grounds to assign these brasses to a starting date of the eighteenth century and most probably to some time after ca. 1735.

The motifs and patterns seen on plaques D:1-3 are the same which appear on the so-called 'Erensonye' stool (figs.SEE:1-7; Berlin III C 20295). The alloy content is in keeping with the Bini tradition of how Erensonye had a copy made of the stool which Esigie (ca. 1515) received as a gift from the Portuguese king (Egharevba 1968,27). The perfection of the two or three pieces which make up the work and precision of modelling all indicate that the stool was not made in Benin. This becomes readily apparent when a comparison is made with the Bini pieces which have been attributed to the eighteenth century. If it is European it must be considered either as the original gift to Esigie, the Erensonye copy or some unknown third work. The high zinc content is not necessarily fatal to a sixteenth century identification since one does occasionally notice such brasses being used in European statuary (Werner 1977,184). Since the stool was made for the Portuguese king it is very possible special materials were used other than what would normally be exported.

The second Benin stool (figs.ST:1,2; Berlin III C 20296) is a plainer version with much the same iconography. The alloy content of ST:1 is more in keeping with that found in plaque materials (Appendix 2). This may have been the Erensonye copy as the modelling and workmanship are closer to what one finds in the Bini casting tradition. Currently discussion is being centered about a third stool found at Ijebu-Ode which is thought to have been made either at Owo, Oyo or Benin (Ojo 1975,48-51 and the references therein contained for a discussion of the sites where the stool was made.). If the Ijebu-Ode piece is not Benin perhaps ST:1 was also made elsewhere.

The combination of intaglio, relief and full sculpture seen on the Esigie-Eresonye stool strengthens the argument of bas-relief plaque casting having started after the Portuguese advent. The stool contains many of the motifs, themes and patterns seen throughout the wall plaque corpus. The Bini casters guild most probably had access to this work and it could have served as a reference index. It is not to be thought that the European craftsmen invented the themes and patterns but rather that they had access to many of the gifts and artefacts brought to Portugal by D'Aveiro and others. The presence of so much Olokun imagery could have resulted from the presence of the Ughoton priest-chief, Ohen-Okun, in Europe as Esigie's or Ozolua's ambassador. If the Esigie-Eresonye piece is the copy and the original was different then several of the animal plaques (figs. FS:6,15) can logically be inferred to the later or period II castings.

The question of who was the reigning Oba when D'Aveiro initially came to Benin in 1486 has never been resolved. Egharevba's kingship list (1968,73) has Esigie reigning from ca. 1504-1550. He also mentions the tradition of how Esigie sent the priest, Ohen-Okun, to Portugal with D'Aveiro to plead for catholic missionaries so the Oba and his people could become christians. Ryder believes it was in 1486 that the Ohen-Okun went with D'Aveiro to Europe returning the following year. The plea for missionaries took place in ca. 1514 when the Oba sent two emissaries, Dom Jorge and Dom Antonio. It was in 1515 when the priests arrived with the usual gifts and bribes; one of which included the famous erhe. Hence, it is quite possible that Esigie was Oba from the 1480s (Bradbury 1973,35; Ryder 1961,233).

The D-shaped plaque (CNH:6 p.67) of either the Oba's messengers or two of Osa's priests morphologically matches the full sculpture (BM:M.Reg. 1905.12-1.1; Dark 1973,pl.44). The alloy content of the latter is consistent with eighteenth century European brass (Zn of 25.8%, Pb of 1.9%; Appendix 2). Because of the similarity in overall shape and composition the plaque is also placed into period II.

Rectangular wall reliefs

The winged cap warrior plaque (fig.WBC:3; Berlin III C 7657; 48 x 34 cms.) has been compared to the Oba memorial heads. It may also be satisfactorily compared to the mid-eighteenth century full sculpture identified as 'Princess Edeleyo' (Tunis 1978,57-89; von Luschan 1919, Taf.70). The flanking musicians, on the relief, are wearing either beaded caps with interspersed bosses or very stylized hair similar to the cap or hair seen on the Princess, and the rear figures on several of the altar or shrine pieces (fig.L:1 p.24; von Luschan 1919,Taf.85b.,86).

The ornateness and curvilinear shape of the quadrangular bell increases with time (fig.Bell:1 p.176; von Luschan 1919,Taf.94). On the earliest plaques the bell is rectangular and superficially decorated. An examination of the bell worn on the chest of the warrior chief (fig.WBC:3c pp.91,92) is a late version with the clapper being visible. A very similar altar bell (fig.Bells:2 p.176; Berlin III C 8080) was made from eighteenth century brass (Appendix 2). Similarities in hair style and bells are by no means conclusive evidence as to casting date but when taken together they do tend to indicate a later rather than earlier period of production.

Another image seen throughout the range of Benin art is the leopard and therefore, should theoretically be an excellent time indicator. Chemical analyses of three aquamaniles (Berlin III C 10877, von Luschan 1919,Taf.75; BM:M.Reg.1949.AF.38.1 and M.Reg.1911.6-20.1; Appendix 2 for alloy data) are mixed. The Berlin sculpture is a true bronze while those in the British Museum are leaded brasses. Both morphologically and chemically the pieces agree with the plaques. Hence, the aquamaniles cannot be used at present for dating purposes, but they do reinforce the concept of an internal consistency within Benin art.

Bronze was the favored material in Europe prior to the fifteenth century. Since one of the aquamaniles and several of the wall plaques are true bronzes an argument can be advanced that this is evidence of pre-European plaque casting. It is very doubtful that the aquamanile was a Bini invention (fig.I:5; p.168 Werner 1977,Abb.67-73). It was most probably based on either Islamic, Indian or European pieces. Both the full sculpture and the plaques are a mixture of the earlier bronze and later European brasses and morphologically they fit within the plaque period.

The leopards on the eighteenth century altar pieces (von Luschan 1919,Taf.79,81,85; fig.L:1 p.24) are poor sculptural examples when compared to the aquamaniles. This general lack of quality or care can be considered as one of the identifying features of eighteenth century Bini casting. Two of the distinctive features of these leopards are the narrow circumferential reliefed circles representing the animal's spots and a wide neck collar consisting of long narrow squared end beads. The collars are identical with those worn by the central figure in the von Luschan illustrations. The crotal or pellet bells attached to the collar in the Oba series (figs.O:1,2 pp.52,53) are no longer seen. The collar has undergone a further development in that the beads have been replaced by a series of plaited bands. However, this last stage is seen on the flange of a type 5 Oba head (von Luschan,Taf.85).

The combination of plaited bands and reliefed spots is evident on the dress worn by the warrior chiefs in figs.WHC:1,6; pp.82,84 WPH:16 p.116; WBC:3, pp.91,92 Plaque WPH:17 p.147 is a particularly striking example not only because of the higher relief of the chest patterns. There is also a change in motifs and a different configuration of crotal bell attachment. Neither WHC:1 or 6 (Berlin: III C 8054; BM:M.Cat.98.1-15.83) have alloy contents consistent with eighteenth century brasses. Data does not exist for WPH:17

In Okpome, a Nembe village some miles east of Brass in the Niger delta, two similar brass skulls were seen by Horton (1965,80ff., pl.13). Both of these skulls are believed to represent a carnivore, and one has been identified as possibly representing a hyena. Though the comparable work was found in Benin, and it has an alloy content which matches the Benin materials, it is possible the skull was not made in the city. All three full sculptures do bear stylistic affinities with the one found at Igbo-Ukwu (Shaw 1970,vol.I).

Another image seen throughout full and relief sculpture is the equestrian. The version of an armed cavalry warrior is limited to the full plastique while the relief compositions are both military and non-military configurations (figs. pp.178 59 61 179 EQM:1; WS:1; ECF:1; FE:1).

It is to be doubted that Benin used cavalry forces, since the city is in the heart of the tropical forest and tsetse fly zone. This type of weapon would be more of a luxury in forest combat than a necessity. However, such forces may have been used, in alliance with other groups who supplied the horsemen, when the Warrior Obas were conducting campaigns far from the city. It does seem more logical to identify (fig. FE:1) the full equestrian sculpture as representative of either a Nupe or Oyo warrior. The armed horse and rider (Berlin: III C 17117; FE:1) is a one-piece casting with the arms and legs of the rider and the legs of the horse cast solid.[1] The backward leaning of the horse, the placement of the rider in the rear portion of the composition in an upright rigid pose, and the method of casting all indicate that the work was primarily conceived as a two-dimensional bas-relief. The plaque version could well have been the earlier casting (fig. EQM:1) serving as the model or prototype. The alloy content of the fully sculptured piece is within the upper limits found on the plaques (Appendix 2).

On the equestrian group relief (fig. ECF:1) the frontal section of the horse, the overhead shading shield outstretched arms of both sets of flanking figures and the corner low relief of the hunter or warrior are all cast solid. The foliate and stippled basal plane has been minimized so that it now functions as a device for holding the multi-figured almost three dimensional work together. The high relief almost solid casting is very remindful of the techniques used to cast the full equestrian.

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1. X-ray photographs taken by the Museum für Völkerkunde, Berlin, Jan. 1979.

Roentgen photographs (Tunis 1978,79-83) of a mid-eighteenth century nude portrait of a female (von Luschan 1919,Taf.70; Tunis,figs. 1-3) shows four armature struts were used; each of approximately the same diameter and length. One ran from the top of the head to the area of the crossed chest decoration, the second abuts the first and terminated in the pubic area of the left leg, and the third and fourth extend through each leg and protrude through the bottom of the figure and the plinth. These latter two acted as anchors to tie the main figure to the plinth, and the entire work to the investment. The only other investment anchor was a chaplet extending from the top of the head. The arms were cast solid. The two sets of X-rays are not conclusive but they do tend to indicate a shift or change in casting procedure; away from a two dimensional conception into more of a full plastique technique through the use of armatures. The 'Winged Cap Warrior' emulates more of the full sculptural procedure than the earlier plaque or two dimensional method.

In the instant case of the high equestrian relief (fig. ECF:1, Berlin III C 8056, 48 x 39 cm.) the similarity in alloy content and conceptualization to the fully sculptured equestrian places the work within the same time period. ECF:1 is the later version of plaque p.62
ECF:2 (BM:M.Reg.98.1-15.45). It should be considered as primarily a transition piece from bas-relief techniques into a more concentrated effort of fully sculptured casting. It is tentatively assigned a date at the end of period I.

Some comparisons can be made between the fully sculpted European soldiers and the category I reliefs. The soldier holding the flintlock p.179
(fig.PFS:1; von Luschan 1919,Taf.71; Berlin III C 10863; 46 cm. high) can be dated through the eighteenth century flintlock (Hayward 1969, pls.61 ff.) and the high zinc alloy content. The dress and other accoutrements are consistent with what is seen on the earlier versions of similar type figures (Foreman and Dark 1960,pls.48-49) with the only possible exceptions being in ornateness of dress and weapon being held. The sockel attached to the PFS:1 full sculpture is also a bit higher and does contain the guilloche motif interspersed with bosses and figures. This also makes the work consistent with the eighteenth century altar and shrine pieces. The European warrior's face when compared with the earlier pieces in the British Museum (BM:M.Reg. 1949. Af.46.158 and M.Reg.1928.1-12.1) also has a different malar, nasal and frontal planar configuration as well as an increased facial concavity. The Verlin sculpture is closer to the other altar figures (von Luschan

1919,Taf.79-81). Also, the beard is of the van Dyke type and the long hair so frequently being sported by the Europeans on the plaques does not exist.

Morphologically nothing approaching this later development is seen on the European figure compositions. If these category I reliefs were made during the late seventeenth and eighteenth centuries one should expect to observe a comparable development.

As an aside the armour patterns are used on the plaques and full sculptures (see the Oba series, especially O:6, and von Luschan 1919, Taf.81). The chest armour of the Europeans could well have been copied by the Binis (fig.WBC:3).

One of the full plastique 'Horn Blower' series (BM:M.Reg.1903. 10-22.1; Dark 1973,pl.44,ill.95r.) has recently been thermoluminescence dated to A.D. 1590±55 (BM 1979, unpublished, Appendix 3). The alloy content matches the plaque materials; Zn/Pb of 1.48 and Sb/As of 0.89 (Appendix 2).

The conical hat and feather worn by the horn blower is almost an exact duplicate of the one worn by the warrior chief (WCH:1; p.80 Linden Museum Kat. Nr. 5408). The motifs on the pagne are also very similar. The plaque is a fragment and there is no indication of what may have been modelled on the missing section. The size of the remaining figure does tend to give the observer the idea that the missing pieces were probably a duplicate figure. It is a low-reliefed work with the eben an integral part of the picture or basal plane. Most probably a plaque such as this served as a dress prototype for the horn blower. Again, if the thermo-luminescence date can be relied upon it would indicate that by A.D. 1590 this type of low reliefed two-dimensional work had already been made.

The female is seen throughout Benin full sculpture but only two possible bas-reliefs are known (a plaque in the British Museum, 1944. Af.4.8 and fig.PA:10 bears the tag of 'Queen Mother' on the list found in Appendix 4). The young nude holding a leopard perched on the left shoulder and hand (fig.PA:6; p.135, 136 Fagg 1958,art.158) is discussed in a subsequent section (Palace Associations) and it there concluded that, though the vital organs are missing, the composition does not represent a female. The other plaque (fig.F:1) p.162 is also discussed in another section (Females). Ben-Amos has suggested that this plaque could be attributed to the eighteenth century because of the tradition collected by the late Dr. Bradbury concerning similar plaques which are supposed to date from the Ehenua period. Ehenua was the illegitimate son of Oba Ewuakpe (ca. 1700) (Bradbury 1973,254,pl.II). The British Museum relief p.138 with the name of 'Queen Mother' (fig.PA:10) may have been given this title because of the conical type headpiece and not because of any identifying traits or oral traditions specifically related to the relief.

Chapter 9

Iconography

Dress

There is a continuous elaboration of dress worn by the Bini personages with time. A comprehensive study of Benin dress and dress patterns would help immeasurably in filling many of the large gaps which now exist in the temporal sequencing of the art.

The influence of Indian textiles has already been mentioned, in connection with the origins of the bas-reliefs. It is known that subsequent to the Portuguese advent Indian textiles were used in Benin. In 1508, the factor in Benin received sixteen calicut hats, and in 1521 four tafficirs (Indian material of silk and cotton, brightly colored and striped) were sent to Sao Thome for trade with the mainland. In 1582 Randall Shawe, an English merchant, advised that a Benin cargo should include painted calicut cloth (Ryder 1978, personal communication).

Cloth was woven locally as well as being imported from Europe. The fabric was either of European manufacture (see Ryder 1969, Appendix VII for a Portuguese trading list of the sixteenth century); or the Portuguese, Dutch and English re-exported Indian goods to the Guinea coast (Blake 1942,98,119). Textiles were such a popular item that trade between Benin and other west and possibly central African groups occurred.

Weaving in Benin is an old craft. Fragments of cloth found during the Benin excavations in 1961-1964 bear a possible twelfth century date (radiocarbon dating of bones mixed with the cloth gave dates of A.D.1180±105 and A.D.1310±90, Connah 1975,63). Analyses of six of these finds indicated that four were probably woven of cotton fibres and two from a straw-like material which may have been from the raphia palm. The report concluded that from the accuracy and precision used in the manufacture of the yarns and fabrics they were made by skilled craftsmen of a fairly advanced civilization (Greeves 1975,236-237). The burial of the cloths for centuries most probably bleached out whatever dye patterns may have existed, and unfortunately no information could be gleaned about possible outside influences or indigenous patterns.

The Benin woven cloths during the time of the Portuguese were either the mouponoqua or the ambasis. The larger variety, mouponoqua, was a blue or blue-and-white striped cloth usually done in four large strips sewn together approximately three by two yards. The smaller, ambasis, consisted of three strips. Both types were traded by the Dutch who found a profitable market on the African west coast for the striped materials which they bartered for gold on the Costa da Mina, and the plain cloths for slaves and ivory in Angola and Gabon (Ryder 1969,94; Hodgkin 1975,166). Before the end of the seventeenth century credit trading in cloths was a regular feature of Bini commerce. The cloths were not found readymade by the Europeans, the Benin factors took the yarns and other trade goods on credit, and some five or six months hence the completed textiles would be exchanged. From cloths credit trading expanded into other items which required long distance traffic with the interior (Ryder 1969,131).

A third earlier type of cloth, commonly called the 'lanben' was popular in the sixteenth century Portuguese trade. The lanben described by Pereira (Kimble 1937,117) was a mantle made from various colored strips about three inches wide manufactured in Berbery.

Sometime before 1659 Weichman collected several examples of Benin cloth which are still preserved (Lamb 1975,86). One of these pieces illustrated in Lamb is a robe '... made up of alternate strips of broadloom indigo dyed cotton cut down to a width of seven inches, and narrow strips of white northern blanket type with blue patterned bands, the latter being a kind which one would not be surprised to find today in Kano' (Lamb,86). The Weichman relics are interesting in that they point to a direct north-south trade and that some of the motifs seen on the pagnes worn by the Binis were created no later than the mid-seventeenth century.

The entire range of geometric patterns used by the Bini could most probably be found throughout most of west and central Africa (Menzel 1972,vol.II; Bastin 1961, vols.1,2). Any attempt to trace a particular pattern through the centuries, considering the vicissitudes of cloth life in the tropics, the vaguely understood west and central African trade routes, and the constant re-invention of basic geometric shapes, seems like an insurmountable task. The iconography could possibly be determined. It seems that many of the complicated patterns, whether woven or dyed, from the various locales were most likely seen and copied.

The pagne was described in the 1640s (Translation of Dapper 1668 in Hodgkin 1975,165):

> "Their clothes are like those of Arder. They - people of wealth, that is - wear two and sometimes four cloths on top of each other, one shorter than the other and sewn so that the undermost cloth shows through the top one. Ordinary people wear a single cloth over their naked bodies" (from Hodgkin 1975,165).

In the beginning of the eighteenth century the wealthy Bini wore white calico or cotton about a yard long, and half as broad, underneath a finer white cotton dress that was from sixteen to twenty yards in length. This dress was ornamentally pleated in the middle and held in place by a scarf about a yard long and two spans broad, the ends of which are adorned with either lace or fringe (Van Nyendael 1702 in Hodgkin,175). The men still wore the traditional pagne while at home (Ling Roth 1903,22).

The attire of a royal messenger was described in the early years of the nineteenth century:

> "He was curiously habited, wearing a sort of short petticoat from the waist down to the knees, composed of a cloth resembling our white bunting. This encircled his loins, and set off like an ancient dame's hooped petticoat; the upper part of the body was naked as well as the legs and feet; his neck was ornamented with strings of red coral. In his hand he held a fan made of leather, to keep off the flies, and protect him from the rays of the sun. His head was quite unprotected, being shaved all over, with the exception of a circular spot on the crown, from which a small tuft was still permitted to grow" (Fawkner 1837,82-83).

Later in the same century Burton (April 1863,414) reported seeing Benin chiefs wearing immense white muslin or taffeta peshwaz. These garments extended to the calf and puffed out to balloon shape. They also wore collars and anklets of coral composed of pieces approximately an inch long and so tightly strung that the collar formed a stiff circle nearly one foot in diameter. The Oba also wore coral about his wrists and a loosely tied red and yellow pagne 'the Devils livery we call it' (Burton 1863,414).

Pagne is the French word for loincloth, and similar words exist in both Dutch and Portuguese. Usually one thinks of a loincloth being of just sufficient length to perform its designated function, but in the eighteenth century it also meant a cloth worn by Africans from waist to knee like a kilt (Hodgkin 1975,194 n.2). What Burton was referring to when he wrote of the 'Devils livery' can only be surmised, since this reference appeared in a popular magazine of the era. The shorter pagne apparently evolved into the more lengthy and ornate Iyerhuan (great wrapper) as evidenced on both the plaques and twentieth century photographs (Akpata 1937,pl.1; Ebohon 1972,91-124). It is only

speculation when the full transition had taken place but Dapper seemed to be describing the pagne and from Van Nyendael onward the references are primarily to the Iyerhuan, and in a temporal sequence this would be the period between ca. 1640s through 1700.

The large differences in dress, most especially observed among the warrior chiefs, are evidently attributes of rank and wealth. The garments also seem to serve as an indicator of a particular festival or state occasion as well as marking a particular era or time period. Additionally, one wonders whether the warriors' dress is an identifying feature of a village or area within the empire. The Oba could exercise the power of levying troops and in a 'single day make 20,000 men ready for war, and, if need be, 180,000, and because of this he has great influence among all the surrounding people' (Hodgkin 1975,167-168; Bradbury 1970,41).

The modern African has a predilection for unique and colorful headgear and all the historical evidence strongly indicates that his forefathers enjoyed the same needs and desires. The Portuguese, English and Dutch traders consistently included a wide variety of hats on their trade lists (Blake 1942,98,119,130,270,300; Ryder 1969,40,299,340; Hodgkin 1975,167). Von Luschan (1919,136) enumerated twenty-two different styles of hats worn by the Binis depicted on the plaques (1919,136). The bell shaped helmet, worn by several of the warrior chiefs (fig.WC:1, p.116), he likened to the academic hat worn by a Doctor of Theology of the University of Coimbra (von Luschan 1919,143-144). Several of the high-crowned designs (figs.WH:1,2,3, pp.74,76) are suspiciously like sixteenth century ecclesiastical Roman mitres. The pot hats (figs.WP:1,2,3, pp.40-42) are either Spanish morions or English pikeman gear of the same vintage. The cap or helmet worn by the captured war chief or king (fig.WS:1, p.59) may have been modelled on a European cuirassier's helmet of the period (Amplett 1974,93; Wilkinson 1970,79). The intaglio pattern is very similar to what is seen on European armour of the sixteenth century (Nickel 1969,72 ff.) and is also observed occasionally being worn on the clothing of various ranking Benin personages.

Weapons

Nowhere on the nine hundred or so wall plaques, with one possible exception, are Binis seen with firearms. The small relief, in the upper left hand corner of figure RM:1 (p.150) (also see Foreman and Dark 1960, pl.27) is thought to be the small sixteenth century petarde (Foreman and Dark,38).

The Benin Oba was well aware of firearms, and sent envoys to Portugal in the late fifteenth or early sixteenth centuries ostensibly to request missionaries, but more probably, under the guise of friendship and willingness to accept Catholicism, to secure guns (Ryder 1969, 233). In 1514 the Oba seized a cannon from a Portuguese caravel trading on the Benin river, perhaps to learn the secret of its construction (Ryder,234).

The Portuguese specifically banned the sale of firearms to Benin (Ryder,237 footnote 1) and by the end of the century the Bini still possessed few or no firearms. After 1533 the Portuguese began to lose interest in their Benin trade. At about the same time the French began to make regular appearances in the Guinea Bight area. Trade with Portugal did continue but shifted away from the state monopoly and into the hands of private ventures. The government factor at São Thomé did not attempt to compete with the French in what was becoming a relatively unimportant and unprofitable market. The decreasing Portuguese trade and the commensurate increase of the French does lend creditability of the report that the Benin army used firearms in the second war against Ado when they supported the Ikerres (Smith 1969,58-59; Egharevba 1968, 26,29).

The greatest expansion in firearms began in the opening years of the seventeenth century when the Dutch began to sell and train local armies on the Guinea coast (Kea 1971,187). The English and Dutch started shipping arms in such quantities that by the 1650s the items had penetrated into the forest kingdoms (Kea,190). In the last third of the century arms started being shipped in thousands and were reported to be in regular use along the Gold Coast (de Belleford 1670,254). One reporter wrote the people of Benin did not like arms and were not skilled in their use (Barbot 1746,357-8,361). This seems contrary to the position of the earlier Obas who had made concerted efforts in the opposite direction. One could hardly doubt that firearms found a market in Benin, and according to Kea the musketeer was the principal military arm of the coastal armies by the first quarter of the eighteenth century (Kea,207). After 1750 the Danish musket or Dane gun became the principal firearm exported to west Africa and remained popular until the nineteenth century (Kea,199).

Perhaps Barbot is correct and the Bini did not much care for guns and this accounts for their rarity in Benin art. The evidence does indicate the Bini, at least, had muskets (Pitt-Rivers 1900,figs.235-236)

and knew how to use them. There exists a fully sculptured figure of a musketeer holding a flintlock and wearing a cartridge belt and curved powder horn flask. On the ground touching his feet is a decapitated head and the top front of the sockel is decorated with cannon balls (Pitt-Rivers,63). The dress is very similar to that worn by the sixteenth century Europeans but the forehead circatrices and prognathism of the face identify the figure as Benin.

It does seem strange for the musket, a prestigious item, to be excluded from the category IV sculptures, when a ship's type mortar is observed. Perhaps it was a violation of the Benin tradition or canon to illustrate an important and ranking military chief, as well as others, with firearms. European art is full of heroes and kings, from an altogether different time period, wearing Roman dress.

The traditional weapons which include swords, knives, clubs, spears or lances, and bows and arrows, are commonly observed. It is beyond the scope of this work to enter into a comparative analysis of Benin weaponry with that of its neighbors or to discuss a possible evolution of such items within the Benin kingdom. At first blush, the weapons seem to show little or no development other than increasing ornateness, but perhaps to the eye of a skilled expert significant differences that would be chronological indicators may be detected. Whatever discussions of arms that may be found in this text are reserved for subsequent sections where the particular weapon is noticed.

Some general aspects of the wall bas-reliefs

Only two different background motifs were used on the Benin wall plaques: either the circled-cross or the more usual quatrefoil. The latter predominates, with the usual variety being four-leaved, although three-, two- and one-leaved foils are not unknown. In combination with these intaglios the background or bas plane is stippled with innumerable roughly circular incisions throughout.

The two motifs are thought to be related to the Portuguese through their connection with Olokun. It was from the sea that they came, and they were able to accomplish this only through the beneficence of the god of the waters, Olokun. 'River leaves are used by Olokun priestesses in curing rites, and the circled-cross is one form of aghadaghada design drawn in chalk at the center of the Olokun shrine courtyards. Both the leaf and circled-cross are quadrivial, a basic cosmological form in Benin thought. Called ede-ene, the cruciform represents simultaneously the four cardinal directions, the four days of the week, and the unfolding of the day-morning, afternoon, evening and night' (Ben-Amos 1979, personal communication).

The significance of the stippling is not known. The effect does accentuate both of the quadrivial designs. Generally it seems to have been placed randomly in an effort to fill up the intervening area between either the foliates or the circled-cross. The random pattern does not detract from a possible significance of the incisions. Perhaps the accentuation or tonality in the work, effected by the incisions, is an expression of light and dark in the Cassirerean sense of position in mythical space.

The particular backgrounds are not observed on bronze period statuary, on the probably earlier ivory relief carvings, nor on any of the 'Tsoede' group and the Ife pieces. The Ben-Amos hypothesis about the significance of the quadrivial patterns appears to be consistent with the visual evidence and chemical data. When all of these factors are taken together the indications become more pointed toward the plaque period starting after the European advent.

The rarer circled-cross is considered indicative of an earlier cast work, perhaps being originally used to decorate a small building (Dark 1975,58). Evidence does exist for a possible earlier usage than the foliate found in the reports of Connah concerning his recent excavations at Benin. Five plaque fragments were found and four exhibited the circled-cross. Three of the four are in a stratigraphic context of a middle phase while the foliate was in the late phase. The difficulty in assigning a particular date is that the pieces were found in midden material but in a context of A.D. 1650 to 1750 (Connah 1975, 139). Fragments of bells with the same circled-cross motifs were excavated along with square-faced gin bottles and a glass bead tentatively identified as either Venetian or Dutch and post-A.D. 1700 (Connah,73). A comparison of these bells with other finds in the same site moves the date somewhat forward to post-1800. Nothing was found to indicate pre-European usage of either the circled-cross or foliate patterns.

It is possible the designs so intimately connected with Olokun could have been copied from European patterns instead of being a Bini invention or a transference from another African area. Mentioned earlier herein is the use of the circled-cross and foliate patterns by the Tshokwe in Angola and the Congo. Since the Portuguese were the common factor, they could easily have been the transferring agent in both cases. It is conceivable that the circled-cross is a two-dimensional manifestation of the Christian globe, symbol of power, which in the hands of Christ would be the emblem of his sovereignty and in man's hands one of imperial dignity (Ferguson 1977,175). In 1514 Dom Manuel ordered three chasubles and two albs to be taken by the Portuguese priests along with

the other necessary vestments, altar furnishings and books (Ryder 1961,234).

If the motifs were seen on church vestments and ancillary paraphernalia (Meyer 1957 reprint,pls.109-110), and once an explanation was forthcoming about the two halves of Christ, a responsive chord may have been struck amongst the Bini because of their own concepts of the universe. The absence of evidence concerning pre-Portuguese usage is not conclusive that these icons were dependent upon the European advent. They could have been re-invented or transferred from the monophysite Church in Nubia or come up from central Africa (Butler 1884,vol.I,II).

The circle and its descendent the spiral, with its endless modifications, is very common throughout the world. In west Africa it is found on the Akan goldweights (Menzel 1968,n.15-304), textiles (Menzel 1972,vol.II), bas-relief wood carvings (Krieger 1969,vol.II, 114,137,140; vol.III,28,64), twelfth century smithed objects found in Benin (Connah 1975,63,158,159) and pottery (Connah,122,128,129). Two possible explanations for the guilloche are that it is a representation of either entwined snakes or derived from mat-making (Dark 1973,72). Another possibility is that the guilloche is based on Roman and Greek motifs which were imported into Egypt between the fourth to sixth centuries A.D. (Dittmer 1967,219). The motif was then used by the Coptic and Abyssinian Church and eventually worked south.

In many areas of southern Nigeria the python is venerated. In Benin it is the messenger of Olokun and in the Niger delta it is often found to represent a tribal or war god (Leonard 1906,329). If a python is killed either by accident or design it must be reported to the priests who act as a court to mete out the appropriate penalties. In extreme cases the death penalty is imposed. The fine is usually connected with the number seven. One of the observations which Leonard reported (1906,334) is that there can never be a direct reference to the python's death, because there never can be an admission of the death of an indwelling ancestral spirit. The Oba is also never referred to as having died. If it must be mentioned there is always an oblique reference through metaphor (Egharevba 1971,71).

Apparently the cult was quite common on the Guinea coast and Frobenius considered it one of the features of the Atlantic culture, having been derived from the Mediterranean (Frobenius 1912,339-340). It was known on the Gold Coast, among the Dahomeyans and north to the Nok area of Nigeria (Kalous 1967,29-32).

Many of the reliefs have secondary or ancillary low reliefs, usually found in the upper corners of the plaque but sometimes in all four sections. The most common are the fish, rosette, manilla, leopard, European, crescent, crocodile, and hemispheres. The unifying factor of all these representations, except perhaps the leopard, is again the relation to Olokun. 'The appearance of so much Olokun imagery as background in plaques depicting court ritual and court life is a perfect commentary on the period of Esigie's reign, when the powers of the sea worked behind the Oba to strengthen and expand the kingdom' (Ben-Amos 1979, personal communication).

Dark (1973,74) touches upon the question of these ancillary reliefs as both support for the main theme and as '.. perhaps satisfying the Edo artist's apparent horror vacui ...'. The present writer agrees with Professor Dark who believes there are two elements inherent in Benin art: the formal one of the form or shape which gives an aesthetic value to the viewer and the second which gives meaning to the form (see also Boas 1955,88). It is unfortunate that in his monograph there was not more effort expended on the second thesis.

The plaques were conceived and executed along the subsequent formulations of Denis Williams's Benin canon. They are overwhelmingly rectangular in shape and in composition. The sculptor's view of median plane throughout the entire closed composition remains fully frontal. There is never a real transition between views, and even in the plaque 'European with matchlock and dog' (fig.EW:1), one sees three separate views: profile, full frontal and three-quarter, when taken from the central plane. Again, from this vantage there is no transition. Each view does operate as a separate entity and the absence of the transition destroys the possibility of treating the form, in the European sense, as an homogeneous whole. Occasionally one notices some sort of attempt at transition, as evidenced on the European corner bust figures of the Period II plaques (fig.WBC:3).

All the surfaces are convex and in the later Period I and Period II reliefs the rectangular or cubic mode does become somewhat modified from the earlier figure modelling to more of a tubular or cylindrical shape. This is the result of higher relief figures with commensurate larger surface areas now being more fully sculpted. The only pronounced concavity is found within the facial orbital region. This concavity is seen over the entire area from the Benue to the Congo river (Sieber 1974,Introduction). The upper and lower lids of the eyes are modelled from circular strips placed around the orbital cavity in lozenge form. Occasionally the lids are striated.

The reliefs do not have any haptic appeal such as one occasionally finds on the full sculpture. This may be caused by lack of tracery and the cube being a dividual and discontinuous form. Both factors tend to discourage any desire for tactile sensation.

The staticism of the figures is a universal trait throughout the entire relief corpus. Arguments can be presented concerning the conscious effort to depict movement in certain of the early Period I European figurative representations. The bent legs, and the side arms turned horizontally, indicative of the figure moving into a position preparatory to firing the matchlock, still do not, to this writer's eye, convey anything more than arrested or frozen motion. Fagg (1950,69-70) has suggested that this position is the result of a spiral treatment of the human body based on European influences, possibly stemming from the same ideas of mensuration which produced the Pantheon metopes. Equally valid is the more mundane idea of the Binis simply being intrigued by these items and so they modelled what they saw. Most west African wood-carvings are executed with the figures in a bent knee position. In the later Period I and Period II plaques any such attempt has been completely abandoned and the figures are locked into an immobile full frontal pose.

In all four categories of Period I reliefs the overall cubic form of the relief remains securely fastened to the rectangular base plane. The cubic structure becomes modified in the high relief pieces into a more cylindrical form. There is never an evolution either into the work being homgeneous in form or transferring into any biomorphic mode. The increasing relief from the earliest through the later works is coupled with an increase in ornateness, complexity of composition, and casting technique, plus geometric rigidized hieratic composition. In the later pieces Europeans and animals disappear as the primary subject matter and the corner flat reliefs are usually either European bust figures or Binis.

Group composition as seen through the plaques is not a common form of representation in African art. It does occur in west Africa and is primarily concentrated along the Guinea coast area (Pasztory 1970,299-306). All the group compositions appear to share the following features:

"1. Symmetrical arrangement against a real or implied backdrop.

2. Combination of symbolic with natural elements.

3. Bilaterally symmetrical composition with frontal view of the main character. However, the flanking attendants may be shown frontally or in profile.

4. Composition may be extended laterally and in depth by the addition of further pairs of attendants" (Pasztory 1970, 299-306).

Benin plaques fit into this formulation and one or two reasons which relate form or composition to weltanschauung have been discussed.

Foreshortening and perspective are not found as the result of a conscious effort on the part of the Bini artisan on the wall plaques, because of the conception of mythical and perceptive space which are manifested along intersecting planes. The varying median plane of the sculpture which permits the sculptor to always work in the frontal view does not preclude a natural foreshortening and perspective occurring within the viewer. This would become more pronounced with viewer distance and changes in the eye to picture angle, e.g. if the plaques were placed above eye level in a dimly lit room the necessary deviation from a structurally simpler pattern would occur. The jaundiced eye creates the necessary illusionistic effects of depth and vanishing points (Albers 1975,34-47).

Viewer foreshortening is an early Period I phenomenon. Perspective effects due primarily to the increased relief and more crowded hieratic compositions, causing a greater interplay of light and dark, are observed in later Period I and throughout Period II.

In category III compositions the viewer is often shown a composite of two different views. This is quite evident in the leopard and fish series (see 'MF' and 'L' illustrations herein). Facial portraits of animals and humans are consistently full-frontal. The only exception is the corner reliefs of the Europeans. Here the faces are in profile and the torso is in full frontal. Eyes are usually seen completely from one vantage but on the cow and crocodile plaques the viewer is forced to move to a three-quarter position in order to see the complete eye.

The leopard is accorded special treatment, with the body in profile and the head rotated into a full frontal top view. This duality of view is more than likely an unconscious manifestation of the artisan. Perhaps the leopard was chosen because it is the king of the bush and the physical counterpart of the Oba. To show it in another configuration when it is the primary theme might be a violation of the Bini hieratic ethic. The duality of the fish is more in a split representation.

Europeans with weapons (EW) pp. 3–9a.

The matchlocks modelled on figs. EW:1-EW:4 were rarely produced prior to the sixteenth century (Eaves 1979, personal communication; Hayward 1969,5). The firearms carried by the 'Huntsman with dog' (fig.EW:1) and the 'European with nine-pendant collar' (fig.EW:2) are representations of snap-matchlocks favored in the Iberian peninsula, and possibly the forerunner of the later snaphance and flintlock (Daehnhardt 1975; Nickel 1978, personal communication). Both Nickel and Eaves maintain that this type of weapon was introduced by the Portuguese to Japan about the mid-sixteenth century and the weapon on the plaque could be the later Japanese modification. The smaller pistol size place the plaque manufacturing date subsequent to 1540 (fig.EW:2).

Three of the weapons have straight butts (figs.EW:1,2,3) which were more usual in the first half of the sixteenth century and were taken from the straight stock of the older cross-bow. On figures EW: 4,5 the Bini artisan has copied the petronel with its more strongly shaped butt, which was designed for the weapon to be placed against the shoulder instead of the cheek in the matchlock. The petronel is considered basically a Spanish weapon and was favored in the western Mediterranean during the second half of the sixteenth century (Nickel 1978).

Nickel identifies the crossbow held by the European (figs.EW: 8,9,10) as a stirrup type bow, probably of steel construction. This weapon could not be hand spanned and had to be set on the ground, upside down, with the archer's foot set into the loop at the bow end of the stock. The claws of the spanner, seen hanging from the belt, was hooked into the bow string and when the loader straightened up the weapon was cocked. Weiditz (Hampe 1927) has an illustration of a Biscayan peasant carrying such a bow and the ancillary equipment. The arrow groove, also modelled on the plaque, is typical of western European crossbows. The dagger (figs.EW:1,3) is the 'earred dagger' popular in the western Mediterranean during the fifteenth and sixteenth centuries. The origin is Near Eastern, and it is characterized by two flaring flanges on the upper end of the grip. The pecular grip shape is derived from the natural curvature of shin bones which were commonly used (Nickel 1978).

The other daggers and swords (figs. EW:2,11,12,15,16) and especially those depicted on figures EW:11,12, are weak attempts to represent the system of quillons, guard rings and pommels of the hilt of mid-sixteenth century rapiers (Nickel 1978; Eaves 1979; Blair 1962; Stone 1966 reprint).

The 'Huntsman with dog' is wearing a parrying dagger with turned down quillons and guard rings of the Italian style common in the 1530s (Tarassuk 1977,33ff.).

The pole arms are vaguely based on sixteenth century partizans (figs.EW:11,13,14 pp. 8,9). Normally the hooks are turned upwards. Nickel has suggested these weapons could be special naval editions designed to be used as grappling hooks.

The fringed bib and dagged collar (figs.EW:1,2) were costume elements of circa 1530, examples of which are illustrated in von Luschan (1919,Abb.24-26). The trunk hose and canions (figs.EW:7,12) are very similar to those worn by European sailors during the mid-sixteenth century (Hampe 1927; Ribeiro 1978, personal communication). The doublets with contrasting sleeves (figs.EW:3,8) all point to a date probably beginning during the last half of the sixteenth and carrying over to at least the beginning of the seventeenth centuries (de Bruyn 1581,figs.39,40; Lipperheideschen 1896,Abb.3060). The hats are either a variety of the Spanish kettle with bevor (Wilkinson 1970,57,58,78), figures EW:2,12 p.8, or the high crowned soft hat with or without feather and in one case with a finial. The high crowned hat dates from approximately the last third of the sixteenth century (Wagner 1978, personal communication; Harrison 1960,100,109; Amplett 1974,93). The variety of headgear is probably based on either Iberian or Morisco models (Ribeiro 1978). The heterogeneous crews which manned the Portuguese vessels of the time could more than likely provide the Bini with almost any sort of headgear to use as models.

The long hair and beards worn by the majority of the Europeans are circa first quarter sixteenth century (Ribeiro 1978). Ribeiro has suggested the hairstyle could be regional and quite different from that worn in the rest of Europe. Perhaps the majority of the Europeans depicted on the plaques were residents from Sao Thome and this was the style of the islanders. It is doubtful that hair was being copied in all cases by the Bini artist. On several of the plaques the viewer is observing the open side flaps of the morion or the soft type high crowned cap. The hot humid weather would prevent the users from wearing the flaps closed. On other plaques the flaps are in place and closed through the chin strap (fig.EW:2). The stripes along the length of the flap may be representative of either quilting, leather stripping or sewn pieces of cloth.

The information gleaned from both weapons and dress indicate that the plaques are most probably not individual portraits but rather composites of any number of individuals from various vessels. This is what would be expected, as the crews were of necessity a heterogeneous lot because of the high mortality rates (Ryder 1969,78). The disparities seen in hair styles, dress and weaponry cause one to assign a date of plaque manufacture from about the first third of the sixteenth through the end of the century.

Europeans without weapons (EWW) pp.10-15

There is no significant difference in dress between the Europeans seen on this and the previous group of plaques. In this sub-category the Europeans are also attired with the sleeveless or short-sleeved vest over a close fitting under-garment, pleated skirt of varying length, or short breeches over hose. This was the typical sailor's dress of the time (Nickel 1978). The vest and breeches are either cross-hatched or marked with a series of diagonal parallel lines (figs. EWW:4,8,9 pp.10,14,15). It has been suggested these markings could indicate lightweight quilted or metallic armour. Quilted armour is an eastern development and also favored by the Morsicoes (Eaves 1979). The absence of any billowing caused by underneath tufting or packing in the breeches or the vests may be due to the removal of this material because of the hot weather.

In lieu of weaponry these Europeans are holding either long staffs or canes. The staff could be either a modified partizan or both staffs and canes were accoutrements of dress.

The manilla is seen in this sub-category being held by the Europeans while in the previous section they were used as low relief background.

Several stories concern the origin of the manilla. Prior to the time of the Portuguese, fishermen occasionally found in their nets bronze torques resembling those found in Phoenician and Celtic graves. Further searching produced others, perhaps from some ancient wreck in the Niger delta area. When the Portuguese came the torques, which were now in great favor, were displayed and the locals asked the Europeans to make them copies. Manillas were then introduced and because of the great demand more of the same were fabricated, in smaller form. They became the currency of the coastal regions and gradually extended inward to the forest area until the manilla became the standard medium of trade from the coast to the Niger and probably even beyond (Talbot 1932,282-283). The second version is how the manillas were originally made in

Delta area from the bronze bolts taken off wrecked ships. Talbot (ibid,283) inclines to the first tradition, because the torque was seen among the Kalabari before the first World War, and chiefs would not be buried without several of these penannular rings. The most probable origin, according to Talbot (1932,283), was the penannular money of the ancient Egyptians and Phoenicians.

The manilla was one of the earliest items of Portuguese west African trade (Blake 1942,70-76). Dapper also reported that along the Kalabari the Dutch exchanged rough grey armlets, oblong in cross-section, with a rounded curve and very well made, for slaves. The natives were very particular and upwards of two or three hundred from a barrel could be rejected. In addition, to exchange for slaves, the Dutch would trade red smooth copper rods each weighing a pound and a quarter as well as being a yard and a quarter long. The Kalabari would beat put the rods as long and as thin as possible and subsequently plait pieces of the wire together as jewellery. The armlets brought by the Europeans were used only for currency (Talbot 1932,283-284). The first manillas introduced by the British were at the end of the eighteenth century and were made from either copper or an alloy of copper and iron (Talbot,284). It was still such a popular item that counterfeiting took place in the twentieth century (Grey 1951,65) and Talbot writing in 1932 listed nine different types then currently in use (ibid,284).

It was believed that the manilla was known and used in Benin prior to the Portuguese (Marquart 1913,49). In the first years of the sixteenth century the Portuguese obtained a number of manillas from the Congo for re-export. The later Benin import was similar to the purple copper armlet and grey copper armring or "bochie". This was a lower Congo export to Calabar and Rio del Rey (Sundstrom 1965,235). It cannot be established, at present, whether the manilla type rings found in the lower Niger came from the Congo, or those originally in the Congo came from the lower Niger. The transference period from the Congo to the Guinea coast is also not known. All that can be said is that at the time of the Portuguese intervention that particular ornament was well known in the Congo (Sundstrom,235).

It is not known what the original Portuguese manillas looked like as none have survived (Jones 1958,48). The Jones paper is unclear whether the author believed another type was traded by the Portuguese on the Guinea coast and in central Africa, or whether he simply did not consider the Benin plaque depictions. The Queen and Obo manillas which

were found on the Kalabari shrines are not bracelet size and are very similar to the pieces described by Talbot. The manillas had become standardized by the eighteenth century into the smaller variety (figs. MA:1; Jones,48).

The manillas held by the Europeans when considered on a proportionate basis to the size of the Europeans are quite large. This could be interpreted to mean that sixteenth century shapes were either closer in size to the Queen or Obo type or size was an indicator of importance as a basic trade item.

In addition to the manillas and staffs several of the Europeans are shown carrying small handled bags in their left hands (figs.EWW:6,9) pp.13,15 Beads and cowries were also important trade goods and the bags could be a reference to same.

Other Europeans (EO) pp.15-16

Lindbloom in his 1939 paper (,193-198) described the Stockholm collection and one of the illustrations was a Benin plaque of a European sitting on a chair with a European to each side (Abb.1; Ht.34 cm., Mus. no. 07.44.386). The acute observation of the artist helps identify the chair as most probably of sixteenth century vintage and possibly modelled after those found in the cathedral at Toledo (Speltz 1959 reprint,pl.383). The lone European astride a horse (von Luschan 1919, Abb.60; Pitt-Rivers 1900,ill.29) is holding the reins in his left and a spear or partizan in the right hand. The two low reliefed leopards, one directly above the other in profile view, indicate either a hunting or war plaque. If the work is interpreted as representing a European cavalryman aiding the Oba then it would have to be assigned to Esigie or one of his two immediate successors, since all three were warrior kings. The plaque could be taken as representing a European hunting leopards. In this case it would fit in with the hunter series, and most especially the plaque of the Europeans stalking leopards in the bush (fig.L:3) p.26

Included herein are two of the smaller variety works which are facial portraits of the Europeans and a side-view section of a relief in the Museum at Koln (figs.EO:1,2,3). pp.15,16 The side-view illustrates the low relief found throughout the European series where all the appendages and weaponry are tied very closely to the basal plane. The faces are modelled flatly with little or no concavity and the only curvature is the convex shape of the nose. The narrowness of the bridge of the nose and hint of the eyes being slanted upwards are the main distinguishing facial features other than the long hair and beards. The fishes' barbels

(Category III) are modelled exactly like the moustaches. The overall shape of the face when viewed from the front is heart-shaped. p. 9

The bottom half of a European holding a partizan (Fig.EW:13, ; also von Luschan 1919,Abb.43) is directly correlatable to figure EW:13, and is probably the European counterpart of the large two-sectioned plaque of a warrior chief wearing the mitre type hat (WLH:1, p.75

All of this series are low reliefed pieces with the head to body ratio varying from a high of about 7.5 to 1 to the more usual 4.5 to 1. The composition are all rectangular and the poses are full frontal except for two variations where the Europeans are about or getting ready to discharge their weapons, and the fragment plaque (von Luschan 1919, Tafel 6c. no. III C 8368).

In the Berlin fragment (no longer in the collection as it was lost during World War II) two Europeans wearing bands about their foreheads and holding their hats are turned toward one another as if they were engaged in an animated discussion. The legs are also bent on one of the figures and in the other that portion is missing. Above their heads is a large rosette. This work is isocephalous and rectangularly modelled. It is a very unusual plaque not only because the figures are turned toward one another but there is an overall thematic composition in the European sense. Hopefully, some day the work will turn up and it could be studied.

Twenty analyses are tabulated (Table I; the basic or raw data are found in Appendix 2, for the Berlin and British Museum collections) of nineteen different plaques representing Europeans. The Zn/Pb varied from 0.67 to 3.43 and the Sb/As from 0.33 to 8.8. The Sb/As ratios for those plaques in the Museum für Völkerkunde Berlin (9 pieces) were consistently higher than what was calculated for the British Museum plaques. The Sb/As median of the Berlin reliefs was 3.67 and in the British Museum (BM) 1.0. The significant difference seems to result from different arsenic data reported. Whether there is an error in one or the other sets of data or the result is different because of different personnel or quantitative method used the present writer, at this time, has no way of knowing.

Both sets of data when plotted (Graph I) do fall within the general range of plaque materials. Nothing can be determined on the basis of alloying constituents where in a particular period the individual pieces should be allocated. On a morphological reasoning, considering the low-relief, the variance in head to body ratio of 7.5/1 to 4.5/1, and the dress, as well as the weaponry, the plaques are placed within the beginnings of Period I.

Inanimate objects (IO) pp.17-20

Figure IO:1 p.17 is a low reliefed plaque of a cylinder, hemispherical-like projections in each of the corners and a small button-like relief in the upper center. Two other examples are illustrated in von Luschan (1919,Band IX,Taf.50:11,12).

This basic conic section is seen atop the Esigie/Eresoyne stool (SEE p.172 :1), as a forehead circatrice (fig. PA-15 p.A39), interspersed throughout the guilloche motif, and even as spots on the leopard. In some cases it serves a decorative function but in this plaque there is most probably an iconographical significance. Two of the most frequent explanations are that they represent a mirror or a heavenly body.

Historical evidence exists for the looking-glass concept. Randall Shawe in a letter of May 1582 (reproduced in full in Ryder 1969, Appendix VIII) advised a prospective voyager to Benin to take along at least three or four looking-glasses as presents for the king.

In the von Luschan illustrations the circle is framed by crescents. The disc and the crescent appear to represent a stronger argument for a sun-moon or heavenly body iconographic interpretation. In the Bini world the crescent is the usual configuration for the moon. Sun and moon imagery are related to the Iwoki guild, a group concerned with aberrant celestial phenomena (eclipses, comets, etc.). This guild was formed during the time of Esigie by two Portuguese, Uti and Ava (Ben-Amos 1979). The Benin calendar is filled with festivals and ritual occasions, both of a public and private nature (Melzian 1955,87-107) and the relief could be in commemoration of such an occasion. The four hemispheres may be related to the number 'four'. This is a sacred number in Benin cosmology and indicates such things as the four days of the week, the four cardinal directions of the universe and the four priests (the wearers of the Maltese cross) of the high god, Ohen-Osa. An overall reading of the plaque does indicate a relationship between the divine kingship and the heavenly bodies of sun and moon. One intriguing possibility is that composition represents either a solar or lunar eclipse.

Repeating patterns of two concentric circles are also depicted on several of the bas-reliefs (von Luschan 1919,Band IX,Taf.50). This same motif is repeated on knife and sword pommels and something very similar is observed on the chamfrons worn by the horses. The popularity of the circled basic form and the addition of crescents seems to tie these plaques securely to a cosmological theme.

The Beattie remark of imposing our own 'folk model' on an alien society is beginning to become bothersome. In attempting to interpret discs, hemispheres, crescents, a writer is advancing an explanation which is logical, within the confines of the ethnographical information, and correlates to a model of the Bini universe and yet could be totally false. Such explanations could be imposing a dimensionality upon the Bini artist, in this particular case of inanimate form which is denotative of a particular representation which did not consciously exist when the form was created. Circles and hemispheres and crescents are natural forms, yet one always finds oneself interpreting the shape as flowers, fruits or whatever. 'Geometric forms require purely intellectual and original organization to recommend themselves to the eye as sensible Gestalten, and must be relatively simple to be handled by their inventor or beholder as beautiful forms. But natural objects, by virtue of their practical significance, carry a certain guaranty of unity and permanence, which lets us apprehend their forms, though these forms would be much too difficult to grasp as mere visual patterns without extraneous meaning' (Langer 1978,249). If the artist saw only pure form and, because of the mechanisms of the mind inherent to the viewer a symbolic representation is attached, then would not the conclusions between the artist and viewer be different? In one sense or thought level what the artist is communicating would be falsely resolved by the viewer. The final question is whether or not the thoughts or method of viewing of the artist have any significance on a deeper level in an iconographical analysis.

The eben (figs.10:2,3) is a ceremonial sword conferred by the Oba upon various chiefs as a symbol of authority and is seen throughout southern Nigeria. The overall shape is similar to that of the river leafed foliate incised background seen throughout the plaque series.

Other common inanimate objects represented on the wall reliefs include sword scabbards (fig.10:4), drums (von Luschan 1919,Band IX, Taf.49G), single percussion bells (von Luschan 1919, Taf.49H,I) and fans (fig.10:5).

The two examples of the object shown in figures 10:6,7 have been described either as the double-bladed axe or the outer garment or scapular worn by the Benin warriors. In the latter interpretation the cloth is cut in the symmetrical pattern and the hole represents the place for the head. The leopard's head seen along the edge of the chasuble is very remindful of the leopard head worn on the chest of the warriors (see 'Warriors').

The double-headed axe interpretation is based on the Sango oral traditions. Sango was the fourth king of the Yorubas and his domains included Yoruba, Popo, Benin and Dahomey areas. He was dethroned for being a tyrant and exiled from the country. Finding himself friendless and deserted by his favorite wife, Sango committed suicide but was later deified. In order to atone for the taunts and other abuses which were heaped upon the luckless king, Sango's friends went to the Bariba country to learn charm-making and how to control lightning so that their enemies' compounds could be destroyed (Johnson 1973 reprint,34). Deaths and fires attributable to lightning became frequent and this was explained as the vengeance taken by Sango for the indignities he suffered while alive. The emblems of Sango worship are smooth stones shaped like a double-headed axe, representative of lightning bolts. These bolts are hurled from the heavens whenever the god would kill anyone who incurred his displeasure. Talbot believes there is a resemblance between this double-headed axe and the winged ankh crosses found in Egyptian tombs of the early Christian era (Talbot 1926,vol.II,142).

The axe head is turned ninety degrees from the normal configuration of the Sango axe. An illustration in Talbot (1926,Vol.II, fig.43j) shows a Bagirimi ceremonial weapon from French Central Africa which is similar to the plaque composition. Smith (1967,99) described a double headed axe used by Yoruba warriors. The weapon was primarily a defensive weapon, hung from the hip, so that if a warrior was surprised while asleep it could easily be reached. Of the two possible explanations, the present writer regards the former as being more nearly correct.

Figures IO:8 and 9 (P.14) were identified in Read and Dalton (1899,60) as a leopard tooth collar with bell and plait worn over the back.

The chemical data and overall physical size of IO:1 (P.17) (Berlin III C 8481; 48 x 34 cm.), IO:2 (P.18) (Berlin III C 8452, 49 x 30 cm.), IO:4 (P.19) (Berlin III C 8446, 52 x 31 cm.) and IO:6 (P.18) (Berlin III C 8451, 46 x 29 cm.) are so close to warrant a tentative conclusion that all four reliefs were made at the same time from the same batch of raw materials. The Zn/Pb ratio varied from 1.5 to 1.74 and Sb/As from 2.78-3.75 and the nickel (Ni) from 0.12 to 0.18 percent. It is a very tempting step from these four reliefs to extrapolate the same conclusions for the others in this sub-group.

The Oba's palace (OP) pp.22-23a.

> "The king's court is square and on the right side of the town when you enter from Gotton. It is as easily as big as the town of Haarlem and enclosed by a remarkable wall, similar to the city wall. It is divided into many fine palaces, houses and rooms for courtiers and has beautiful long galleries about as big as the Exchange at Amsterdam, and one yet bigger from the others, all resting on wooden pillars, covered from top to bottom with cast copper, which depict deeds of war and battle scenes. These are carefully maintained. Most of the royal houses in the court are covered with palm leaves instead of planks, and each is adorned with a pyramidal tower which has at its apex a skilfully wrought, very life like copper bird, spreading its wings.
>
> "The town has thirty very straight broad streets, each about 120 feet wide, as wide as the Keisergracht or the Heerengracht in Amsterdam, from the houses on one side to those on the other, and in addition there are many broad intersecting streets, though these are somewhat narrower" (Dapper 1668,495-505).[1]

The two plaques (figs.OP:1,2) represent the entrance way to one of the royal houses within the Oba's compound. The presence of flanking shield-bearers adorned with beaded collars and ankle jewellery indicates a direct connection to the Oba (Egharevba 1971,96). This is reinforced by the nude youths wearing only a high collar and neck beads and each holding a fan. The youths are probably members of the Iweguae palace association which supplied the Oba's personal servants and domestics (Bradbury 1970,37). The small leopards atop the third step also indicate a direct relationship to the Oba.

The ornateness of the vertical reliefed support columns and steeply pitched roof accent the probability that the casting represents the great hall entrance way where the Oba sat to conduct the business of state. Windham in the mid-seventeenth century, observed how the king 'sate in a great hall, long and wide, the walls made of earth without windows, the roof of thin boards open in sundry places, like unto lovers, to let in the aire' (Hakluyt 1904,VI,148-150). The thin boards could also refer to a method of pinning out palm leaflets quite flat so that the surface when viewed from underneath and dimly seen would appear to be a rectangular surface similar to a board (Punch in Ling Roth 1903,160). Cyril Punch was a late nineteenth century visitor to Benin, and, since he did not personally observe any wooden roofs, he likened Windham's description to a method of thatching he saw used by the Ijos in the Niger delta.

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1. Translation of Dapper from Hodgkin 1975,160.

In the first years of the eighteenth century van Nyendael was in Benin and described the Palace (Bosman 1705,423-468).

On his way to the Oba's audience hall Nyendael passed through a partially destroyed gallery and came upon a gate into which he and his guides entered. In this area the columns were reliefed with wretched carvings, which were distinguished by the guides as representing merchants, soldiers, wild beasts, hunters, etc. Further, the entrance to the Oba's dwelling house was also adorned with the pyramid-shaped tower or turret and the downward facing snake (figs.OP:3,BC:1) p.234, 241

Barbot's 1732 account follows Dapper's earlier Benin account very closely and especially when Barbot describes the bird-serpent motif and the high towers. Ling Roth opined that Barbot never visited Benin and copied Dapper without giving the proper acknowledgements. Also, whatever information Barbot added is also suspect, as he does not give any reference for same (Ling Roth 1903,2).

Landolphe, in the late eighteenth century, described how sixteen feet high earthen walls surrounded several of the Oba's galleries. Thatching was accomplished by overlapping leaves to some eighteen inches thick. The roof was constructed of large timbers in the shape of pillars about eighteen feet apart upon which ceiling joists were placed and which supported the canted roof beams (Quesne 1823,Vol.I:111-112). Captain Landolphe was accompanied in 1787 by one Lagroing who reported that the Oba's house was roofed with shingles (LaBarthe 1803,175; see also Ling Roth 1903,163-164).

The significant difference between the various journals centres on whether the roof of the Oba's house was covered with thatch or shingles and the absence or presence of the long-billed bird atop the tower. All these differences could be attributed to the different times of each account, and the accuracy with which the observer's journals were subsequently transcribed. Current thinking (Goodwin 1959,79) favors the wooden shingles because great numbers of square cut iron shingling nails were found scattered over the surface of the courtyard. These all had been used and dropped from burning timbers in the 1897 fire. The picture of the Palace which does emerge is that the Oba's great hall and houses were of windowless mud and timber construction. The main hall was some sixty feet long and over twelve feet high. The ornate entrance way was adorned with a pyramid-shaped column or turret approximately seventy feet high, on top of which was perched the long-beaked bird with the undulating downward facing serpent directly below it. The roof joists were supported by wooden timbers adorned with carved reliefs.

The modern version of the traditional Benin house was recently investigated (Goodwin 1957,65-85) and it was concluded that primarily the Bini architecture depended upon two factors; environment, which included climatic and other conditions, as well as the availability of natural resources and hieraticism. The roof was constructed from a wide glossy leaf somewhat resembling that of the strelitza and canna. The leaves are made into a shingle or slat in combination with the mid-rib of palm some two feet long. The slats are lapped one over the other from the eaves to the roof ridge over a wooden framework. The leaves curl as they dry and this requires a thick pad of leaves in order to provide the necessary protection.

The ferruginous soil provides the necessary mud or clay that hardens to the consistency of soft baked brick. The clay walls are porous and, like thatch, absorb great quantities of water during the rainy season. The houses of the rich usually have a surface dressing consisting of a fine clay applied to the outside walls in a layer of an inch or less and smoothed into a four-inch wide horizontal fluting with the African snail shell. The same dressing may be found on the floors and on the inside walls of the ceremonial rooms. The walls contain heavy uprights which take up the roof loading.

The walls are built in stretcher courses about the width of the wall and twenty inches high. The course is left to harden before the next one is applied and by custom a commoner is permitted four, a chief five and the Oba six or more. Atop the walls, which do not contain wooden uprights, the timber wall-plate is laid. Because of the heavy roof loading during the rainy season thin roof poles are used as roof beams, purlins and struts and as thatching laths or withies. These are all lashed together and pegged to the top two stretchers for wind protection. The roof cross-section is approximately a 60° isosceles triangle with sufficient overhang to provide deep eaves for rain protection and for water to run off. The steeply pitched roof and light construction provide only a maximum width of some fourteen to eighteen feet. To meet the demands of custom and tradition an aristocratic house should measure some forty by eighty feet.

Four roofs surround each room, supported upon the inner and outer walls of a passage or proscenium. The inner drainage is caught in an impluvium or drainage sump. An underground drain to the outside of the house eliminates the water. This design allows for a narrow living area as most of the internal space is taken up by the sump. The bunks are recessed or space is left for an altar in the walls. Each bunk or altar has a proscenium-like opening under an architrave spanning some eight

feet (all from Goodwin 1959,65-68).

The altar is usually an integral part of the house and the shrine is either an added portion or stands apart. The altar is set into an apse which is recessed to the depth of the width of the passage with the thickness of the proscenium-wall added. The proscenium opening has an architrave made from hardwood some twelve to fifteen feet long and set six or seven feet above the living-platform. The span is eight or ten feet and rests upon the inside walls. The architraves are adzed to shape and often carved. Goodwin (1959,69) goes on to mention that in chiefs' houses and the Oba's palace these were plated with beaten brass which was embossed with traditional designs and tacked with imported staples or cut tacks.

Each of the plaques have been sampled twice. The Zn/Pb and Sb/As ratios of OP:1 (Berlin III C 8377) are 1.39,164 and 2.27,2.36. The same ratios for OP:2 (BM:M.Reg.98.1-15.46) are 3.86,1.88 and 1.0,0.5. The 3.86 Zn/Pb ratio was from a 'cast on'. This most probably refers either to a high relief section or a piece that was subsequently welded to the main casting. If the latter interpretation is correct then the different alloy contents would indicate not only repairs but that the plaques may have been occasionally cast in two or more pieces and then welded. If the 'cast-on' analysis is disregarded there is closer agreement between alloy contents of the two plaques in the major elements of zinc and lead with poorer agreement between the tin, antimony and arsenic contents.

The box in the shape of the Oba's palace (fig.OP:3; Berlin III C 8488) was made from an alloy more comparable to the eighteenth century brass found in the late Oba heads and many of the shrine and altar pieces.

Leopards (L) pp.24-32

The rectangular wall plaques are generally found in two different sizes; the larger being approximately 50 x 35 cms. and the smaller some 40 x 25 cms. There is no correlation between subject matter and size and one cannot readily tell whether size was dictated by the availability of brass, the patron's whim, or the artisan's personal choice. In this particular group the leopard appears in some renderings in profile on the larger size and when the composition is more crowded, such as the leopard feasting on a victim, the smaller version is used.

Included herein is the relief of the Europeans stalking two leopards in the bush (fig.L:3A. pp.26, 26a. It is the only rendering of the animal in which it seems the artisan may have had difficulty or was undecided how the animal should be depicted. The spots instead of being circular

are a variant of the tri-foliate motif and in the area of the neck and along the legs low reliefed curved truncated pyramid-like shapes appear. It is quite possible that one is observing a combination or composite animal: part leopard and part lion. The lion portion could well have been taken from European or Indian aquamaniles seen by the Bini (Werner 1977,Abb.67-73; fig. I:5 p.168; von Luschan 1919,Abb.881). The tail reversed and over the back is also seen in the aquamaniles and throughout this sub-group when the leopard is in a stalking position. The tip of the tail is split into three sections. The number three is related to the Oba and is considered to be the number of threatening power (Ben-Amos 1979). Overall it is a flat low-relief rectangular composition with the Europeans modelled partially in profile and partially in full frontal. This is reminiscent of the Europeans seen on occasion throughout the wall plaque corpus as low-reliefed corner motifs. No satisfactory explanation has ever been given why the eye of the Europeans is in full frontal view, similar to the Egyptian configuration, when the face is in profile.

The head (Uhumwu) is the symbol of life and behavior. It is the seat of thinking (iroro), judgment (enwae) and will (exoe), and the site of hearing, seeing and speaking (Bradbury 1973,263). It is possible that to render the eye in any other way would violate the significance of the head in Bini thought. It would mean that half of the head was in shadow or blackness implying death. Also, one could not possibly function with one half of an eye. Such a depiction may also have a more practical reason in that it never occurred to the Bini to do it in any other manner.

Dapper in his description of the Oba meeting the populace once each year referred to tame leopards paraded on chains during the festivities (Hodgkin 1975,169). The composition perhaps is commemorative of the Europeans attempting to secure live animals for the king's menagerie. The low-relief rectangular modelling, the unified theme, and probable copying from imported aquamaniles, cause this composition to be placed within the beginning portion of Period I.

Figures L:4-10 p.24-30 are illustrations of the leopard or leopards, resting, walking, stalking and eating. L:4 p.25 is a rare pose depicting the animal stretched out and seen completely from the top. Usually a composite version, with the rear portion of the body in profile and the frontal portion (from the area of the front legs) in the top view, is seen. Also the modelling is more cylindrical than what is normally seen (see also L:10 p.30 for a similar pose).

L:11 and 12 (p.30) are full-face portraits and in L:11 one sees a series of loops around the lower portion of the head, very similar to that which is observed on the pendant plaques (Read and Dalton 1899, pl.XI,fig.Bell:3) (p.177). They described the fringe as being similar to the European ruff seen on various portions of dress.

Figures L:13-15 (pp.31,32) are compositions of the leopard completely stretched out in a low relief rectangular composition. The flatness and rectangularity plus the position of the head can only indicate that the viewer is observing skinned animals.

The eyelid configuration is the same lozenge shape seen on the human except on the leopard the upper lid extends beyond the lower in both directions. The eyes are two vertical slits. The interior of the ears usually have 'V' shaped or chevron markings running the length of the appendage with a button-like relief at the intersection of the ear and the body. This is almost universal modelling on all the animals except for the button. On the horse this is carried further and is used for representing the mane. When viewed from the front the head is oval shaped with a rectangular nose splaying out at the top to indicate the orbital area. The whiskers vary from three to five with the usual being four in number, on each side of the head. The incisors are always shown except on the pelt illustrations.

In Bini iconography the leopard represents the counterpart of the Oba, and is a royal totem. It is considered the king of the bush. The leopard's major attributes are its ferocity and predatory nature, balanced by restraint and moderation in leadership (Ben-Amos 1976,246).

The only two significant variations are seen on L:3 (p.26) where there seems to be a combination of leopard-lion and L:11 (p.30) on which the loops appear attached to the lower circumference of the head.

Chemical information exists for some nine plaques of which only five are illustrated herein. The remaining illustrations can be located through Werner's 1970 paper, a portion of which has been reproduced in Appendix 2. (Missing compositions are: III C 8437; 8438; 8450; 8485). The plaques which are illustrated are: L:3 (Berlin III C 27485); L:5 (Berlin III C 8486); L:9 (p.29) (BM:M.Reg.98.1-15.200); L:10 (p.30) (BM:M.Reg.98.1-15.171); L:12 (p.30) (Berlin III C 8436).

The data can be roughly grouped into three separate categories based on the low, medium and high lead and antimony content. L:3 (III C 27485) contains 0.9 percent lead and 0.4 antimony, and forms a category by itself. The high lead and antimony group consists of plaques L:5 (III C 8486) with 6.5 lead and 0.53 antimony; III C 8485 with 7.6 and 0.50; III C 8437 with 14.8 and 0.75; III C 8438 with 6.5 and 0.30.

(All values are in percentages unless otherwise stated.) The lead varies from 6.5 to 14.8 and the antimony from 0.30 to 0.75. The leopard aquamanile (BM:M.Reg.1949.Af.38.1) can also be placed in this group since it has a lead of 12.0 and antimony of 0.7. The third category consists of L:12 (III C 8436) with a lead of 2.0 and antimony of 0.17; L:9 (M.Reg.98.1-15.200) with 1.7 and 0.2; L:10 (M.Reg.98.1-15.171) with 4.1 and 0.1; III C 8450 with 8.2 and 0.25. The last plaque is placed in the final grouping because of the lower antimony content and the possible difficulty involved in sampling for lead. The second aquamanile (BM:M.Reg.1911.6-20.1) with 3.1 and 0.2 percent is also placed herein. The third aquamanile is a bronze (III C 10877; Fig. Aquamanile:1) with 7.0 percent tin and low lead (1.1) and zinc (1.9). This piece is probably a mixture of the earlier bronze and the later brasses. p.178

There is no doubt that in order to determine whether there is any correlation between the alloy contents, and by extenso period of manufacture a greater sampled population is needed and more sophisticated statistical analyses would have to be used. The above simple grouping does seem to indicate that such an approach should be attempted.

Birds (B) pp.33-35

All the birds represented in Benin art are long-billed. Von Luschan (1901,56) identified them as the ibis beninensis because of the difficulty in determining the species. The most common ibis in west Africa is the 'Hadada', without the wattle, and with a harsh loud cry. The wattled bird, seen on the plaques, is found primarily in the Ethiopian highlands and may not have been indigenous to Benin during the period when the plaques were cast. Quite possibly it is a mythical bird composed of parts from many varieties (Schuz 1969,74-81).

It is depicted either in full profile with the wings closed or in a combination profile-full-frontal with extended wings (figs.B:1-4) pp.33-34 The beak may contain a pellet or fish (fig.B:1) and the neck may be curved, so that the head is back and up (fig.B:4). The body markings are of two types: either bands of diagonal chevrons or feather-like elliptical patterns, both of which are in the intaglio form. The chevrons are a common plaque motif and are seen throughout the animal plaques. The overwhelming disparity in size between the bird and the morsel in its beak can be taken to signify the large size of the bird or the hieratic Bini cosmology.

The outstretched winged bird is seen perched atop the okha (cotton) tree from which the amufi (acrobats) were suspended during the Isiokuo festival (fig.A:1) (Egharevba 1971,88). The same bird is also atop the tree observing the hunter (fig.RH:1), and atop the pyramidal towers in the Oba's compound (OP:1-3; BC;1). The same bird again is seen in 'Benin personages', fig.CNH:1, where it is held by palace officials, who are tapping its beak with a small rod, during the Ugioro festival (Egharevba 1971,88). Figure B:5 is an example of the idiophone.

The bird atop medicine staffs (von Luschan 1919,Taf.109), the high towers (fig.BC:1), trees (figs.A:1,RH:1) and the fully sculptured heads (fig.B:6, Berlin III C 10878; Dark and Foreman 1960, pls. 79-80, BM:M.Reg.1948.Af.9.1) symbolizes the constant struggle between good and evil (Thompson 1970,8-17 ff.).

Such an opposition forces the Oba to take cognizance of the powers of darkness or the coming of night when unseen forces are unleashed. Only through the understanding of evil can essential goodness be maintained (Thompson,78).

The fully sculptured 'daemonic head' (BM:M.Reg.1948.Af.9.1) has been thermoluminescence dated to A.D. 1682±35 (Appendix 3). The alloy content of this piece is consistent with that of sculpture B:6 except for the high antimony content of the latter work (Sb of B:6 is 0.66, Sb of the BM head is 0.15). If the lower lead contents of plaques B:1 and 4 (Berlin III C 8429 and 8427) are disregarded, the agreement is quite good between zinc, nickel, arsenic and antimony and somewhat less satisfactory as to tin (Appendix 2). It is all problematical at this level, but one does begin to think about the intriguing possibility that low-relief casting of birds, animals and inanimate objects may have been cast up to the end of the seventeenth century and slightly beyond.

A morphological comparison between the BM sculpture and plaque B:4 indicates similarities in the shape of the wing and the feathered patterns, as well as the beak being partially open. The wattle does not appear on the full plastique.

The Zn/Pb and Sb/As ratios of B:1 and B:4 are: 1.62, 2.16 and 2.25, 1.44. The same ratios calculated from the composition of the BM head are: 0.96 and 1.0. A similar type bird configuration is seen on a small twelfth century south Italian full sculpture (Werner 1977,Abb.89).

Pythons (P) pp.36-40

The python is the only snake seen on the reliefs and is always displayed in a downward position (von Luschan 1901,59). This most probably resulted from its position on the pyramid-shaped towers in the Oba's compound. Perhaps this downward undulation is only for the convenience of museum personnel who have also seen the illustration in Dapper's text (fig.B:1), the palace plaques, and others.

The series was cast in both the large and small versions with and without various low reliefed corner motifs (figs.P:1-10 pp.36-39). One depiction shows the python swallowing a fish with its sides distended near the head (fig.P:1), a very realistic touch. All the animals have incised or reliefed circles along their back within which are found three, four or five smaller circles, also incised or in relief. The head is diamond-shaped with the eyes in a lozenge pattern, parallel with the longitudinal axis of the body. Only in a few cases are the eyes circular and in relief. The majority of the examples do not show the teeth; in those few cases where an attempt is made they are simply hinted at (fig.P:3 p.36). In one case the reptile seems to be wearing a collar (fig.P:9 p.39).

Ohen, the ninth Oba of the second dynasty (ca. 1334), whose legs became paralyzed, asked his personal servants to carry him back and forth from the council chamber. The deception was discovered and the infirm Oba was stoned to death. In one version of the tale Ohen had his legs replaced by mudfish and this was the reason he could not walk. It was in Ohen's reign that the worship of Olokun, the god of the waters began. The python, admired for its color and crushing power, is considered as Olokun's messenger. The appearance of the python on the pyramidal (P:11 p.40) towers is emphasizing a relation between the Oba, king of the land, and Olokun, king of the sea (Ben-Amos 1976,247). The python wearing the beaded collar is another relational emphasis to Olokun.

The python is also seen with the corner reliefs of the hemisphere (von Luschan 1919,Taf.47D), and in a three-figure arrangement of two fish and the serpent (von Luschan,Taf.47C).

Two of the python compositions can be considered as bronzes; P:2 p.36 (BM:M.Reg.98.1-15.203) and P:4 p.37 (Berlin III C 8249), though P:4 has 3.3 percent zinc and 3.1 percent tin. The alloy compositions of these two plaques are close enough to warrant a tentative conclusion that they may have been cast at the same time (Zn:4.1,3.3; Pb:4.3,5.2; Ni:0.45,0.24; As:0.35,0.20; Sb:0.6,0.76). A visual comparison between the reliefs reinforces the conclusion. The overall size is also

compatible; P:2 is 17 x 44 cm. and P:4 is 18 x 44 cm. Plaque P:10 (III C 8477) has a chemical content which more nearly matches the usual leaded brasses found throughout the relief corpus. P:10 (III C 8477) is a high zinc (27 percent) low lead (1.3 percent) brass.

Fish (FS) pp.40-46

There is one (or perhaps two) species of fish seen on the plaques. The mudfish with barbels is observed in four different poses: (a) curled on itself; (b) entwined with another mudfish; (c) composite view of top and profile; (d) normal top view (figs.FS:1-12). The second species is seen in profile and very rarely modelled from the top section (figs. FS:13-18). This sub-category was usually done in the smaller variety rectangular shape, with a foliate and stippled background. Only in one case (fig.FS:1) is the rarer circled-cross seen.

pp.40-43

pp.43a-45

The curled and entwined mudfishes are exclusively cast in the top view. The scales are indicated by oblique chevrons along a narrow incised band down the center line of the dorsal spine with the dorsal fin usually represented. The only exception is on the circled-cross work where the body markings are a two-element interlaced guilloche. The curled-upon-itself version was done singly and in pairs. The head like that of the python is approximately diamond-shaped with intersecting hatching with the interstices singly stippled. Each eye is composed of two round concentric circles. The gills are signified by collars which may or may not be striated and vary from two to four in number. The caudal fin, in both the curled and entwined version, is split into two equal triangular sections, but a triangular tripartite and single-tailed version is also known (figs.FS:1,5). All the animals in this group are in low relief but the oranteness and biomorphism of the modelling varies. These changes are so significantly noticeable as to cause the present writer to speculate that one is observing a steady development from the promorphic to the neomorphic perhaps throughout Period I and into Period II.

The third and fourth versions are also predominantly top views. In the narrow body type the dorsal fin is modelled and the caudal fin is vertical to the base plane (fig.FS:3). Here the body markings are also chevron-like forming a 'V' along the dorsal spines. Only one fish per plaque is attempted while in the wide-bodied form the number of animals per casting varied from one, two, four or five and on the multi-pieces the fish are aligned in columns. In the wider body forms the artist has not restricted himself to any one view and the observer

p.41

may be treated to a composite of profile and top, permitting all the characteristics of the animal to be seen in one rendering (fig.FS:8) p.42 Generally the mudfish is shown extended along its vertebral column or longitudinal axis but in figs.FS:11,12 p.43 this column is curved. The caudal peduncle of this composite is either two- or three-sectioned and the vertebral spines are no longer indicated by an incised band, as this is now indicated by a relief band, the top of which is singly or doubly cross-hatched. The shape of the head remains constant, except in fig.FS:12, where it has been transformed into more of a heart shape. There are now two major body scale depictions: the double cross-hatching and incised stipple and the series 'V'-shaped incised chevrons with and without incised stippling between the chevrons. The tail fin is either two- or three-sectioned. The outer sections are still triangular shaped and the third section is now more oval in form. The tail is usually cross-hatched and occasionally double hatching is observed. The barbels emanate from approximately the mid-point of the side of the head and then toward the rear of the fish in either a concave-convex or straight-convex plane (figs.FS:10,8) p.43.

Again, a development has occurred toward the more ornate cylindrical form with a commensurate increase in relief (fig.FS:16) p.44.

The identification of the supposed second fish bothered von Luschan (1901,65) and still has the same effect on this writer. Dark (1973) in identifying the various plaques in the text constantly refers to the barbelled fish as the mudfish. The fish has been identified as the malapterurus Beninensis murr (Hall 1926,428), capable of delivering an electric shock to anyone taking hold of it. The second type may be the pangolin, mentioned by Ben-Amos (1976,245), as being used as a decorative object on present day kola boxes, as an indication of its utility to man. A positive identification of the shape is extremely difficult, e.g. when the present writer queried various casters in Benin he received a variety of answers which were more confusing than enlightening.

This particular species is also seen on the Eresoyne stool (fig. FS:5) p.41 in low relief on the underside of the top section. The two fish are curved towards one another, in a head to tail mode, with a pellet in each fish's mouth. Figure FS:15 p.43a is also of the same basic species eating either a pellet or a fish. One can only speculate but it is possible the Eresoyne stool fish is the small red perch or drum (Brockhaus 1968,Band VI,Tafel:Fische II) and the Bini version is a copy.

Nothing can be said about the date, since the stool itself is either the original gift to Esigie or a copy made for Eresonye in Europe.

The consistent use of a single view or the proper anatomical relationship of various appendages on the two dimensional reliefs, has never been of primary concern to the Bini artist. The very shape of the barbels suggests either fish whiskers or extended pectoral fins. On the so-called second species the pectoral has a characteristic shape to the barbel, and when extended and viewed from the top view the configurations between both species are similar. On the large D-plaques the barbels or fin have been moved rearward and the extended appendage has been converted into a leopard's leg or foot (fig.D:3) p.58

Another consistent view which does not depict the barbel should normally be sufficient reason to classify these plaques as representative of another type of fish. Nowhere else, in this category, is more than one type of animal depicted. In the Leopard and Bird series the animals are modelled in profile, and in a composite profile-frontal or full-frontal view. Variance in views appears to be a common phenomenon in this category. This is very reminiscent of the early European figurative pieces as well as those Category IV plaques which represent the Oba with his arm-supporters.

In figures P:1 (p.36) and C:1 (p.45) either the serpent or the crocodile are eating the second type of fish. Both feasting reptiles are messengers of Olokun and the plaques may be a reminder of the power of the king of the sea to take life: a right pertaining only to a king. Another possibility is that they represent the death of the mudfish-legged Oba Ohen. The fish is symbolic of prosperity, peace, well-being and fertility, because of the association with Olokun (Ben-Amos 1976,245). It is also one of the most popular Bini sacrifices.

A strange mutation is observed on a Benin plaque fragment (von Luschan 1919,Taf.46.4). It appears to be the mudfish but the barbels and fins are not modelled. Cross-hatching covers the head and a portion of the body like the reptile was wearing a cover.

Plaque FS:1 (Berlin III C 8468) (p.40) has the circled-cross motif and an alloy composition which is very comparable to the other circled-cross plaques (WLH:1, III C 10879; (p.74) EW 13a., (p.91a) BM:M.Reg.98.1-15.2 and WCO:1, (p.108) BM:M.Reg.98.1-15.36).

Two of the reliefs are true bronzes; FS:11, (p.43) (BM:M.Reg.98.1-15.189) and FS:12, (p.43) (Berlin III C 8250). The compositions are such that they also may have been cast at the same time (Zn: 1.8,1.5; Pb: 3.7,1.6; Sn: 6.3, 5.4; Ni: 0.18,0.10, As: 0.2, 0.18; Sb: 0.25,0.34). They are also very

similar morphologically that one is able to further conclude they may have been modelled by the same pair of hands.

FS:17 (Berlin III C 8267) and FS:18 (III C 8269) are compositions of the second variant fish with very similar alloy compositions, except for the zinc contents (FS:17, 15.0 and FS:18, 8.0 percent). FS:8 (Berlin III C 8268) is very close to FS:18 except for the higher antimony of FS:8 (FS:8, 0.53 and FS:18, 0.12 percent).

The chemical compositions are only indicative of Period I castings. The two bronzes are comparatively complicated group castings done in somewhat higher relief than the others, and would represent a possible promorphic solution. The use of bronze is representative of either the Bini's receiving a supply of the zinc-tin alloy or, as this writer believes, a remelting of the earlier bronze with subsequent brass. If the latter argument is assumed then FS:11 and 12 may well be late Period I castings.

Plaque FS:6, of two entwined mudfish, is an ornate version of FS:4 and 5 and is considered a late Period I relief.

Crocodiles (C)

The crocodile appears on both general sizes of the plaques, and as an ancillary motif on the D-shaped pieces. Only two views are ever depicted: the full top, with the longitudinal axis of the body either straight or curved (C:1,2,3; von Luschan 1919,Taf.46.9) and full head portrait.

The head portraits are standard (C:4,5,6), with the head always seen from the top view perpendicular to the longitudinal axis. The general shape of the head is that of a truncated pyramid, with small reliefed circles at the end of the snout, lozenge- or oblong-shaped reliefs atop the upper portion of the head, and eyes which must be seen from a three-quarter vantage for a complete view. The length and the number of reliefs on the head are concluded to be an artist's variant. The narrow band which traverses the entire length of the head is the apex of a cross-sectioned triangle. Emanating from this band are chevron-type bands which alternate with stippled bands. On the full animal compositions the central portion of the body is marked with a rectangular or quadrilateral intaglio pattern which may extend into the tail and into the top portion of the head, framing the oblong small reliefs throughout the top surface.

When the European figurative plaques were observed by Mr. Ian Eaves, keeper of Armour, HM Tower of London (1979, personal communication) he remarked how the corner reliefs of the crocodile head were reminiscent of the horse's chamfron. During the sixteenth century this protective armour was commonly in the shape of either a real or mythical animal. If the Binis saw such a device it could have acted as an influence upon the plaque morphology concerning this animal. In 1505 the Casa da Mina, Lisbon, bought for the Bini Oba a complete set of harness which consisted of head stalls in enamelled copper, silver-plated stirrups, breast plates and spurs, all of Iberian manufacture.

The crocodile is a messenger of Olokun and feared for its tenacity and ferocity; it acts to punish evil-doers. On the battle or war plaques (fig.WS:1) and WCH:1-4 plaques the central figure is wearing the crocodile-covered hat. The animal is also seen throughout the rectangular reliefs as a costume ornament or a separate relief. It is also found on sculpture in the round (fig.SEE:6; von Luschan 1919,Taf.89.92) and ivory relief carvings (von Luschan 1919,Abb.739-744).

The chemical composition of C:4 (Berlin III C 8433) is similar to that found in the two 'daemonic heads' (fig.B:6; BM:M.Reg.1948.Af.9.1) and the python compositions, P:10 (III C 8477) and P:4 (III C 8249). Interpreting the low-reliefed crocodile head (C:4, 48 x 30 cm.) as having been made at the same time as the aforementioned heads is premature, because of the paucity of data and the physical dating problems. The thought does constantly recur, throughout this series, of the possibility of low-relief animal plaques having been made over a longer period than has been previously thought.

The Zn/Pb and Sb/As ratios of C:1 (BM:M.Reg.98.1-15.172) and C:2 (Berlin III C 8435) are: 6.7, 2.13 and 2.85, 2.45.

There is a steady evolvement of morphology through the pieces in this sub-group beginning with C:1 to those seen on the D-shaped plaques and the Esigie/Eresoyne stool. The rectangular compositions never approach these promorphic solutions and because of this and their alloy content they cannot be assigned to plaque Period II. The curved body figurations are similar to the mudfish compositions (FS:11 and 12) and are placed into the same period (late Period I). The heads are seen throughout all the plaque categories; but predominantly during the period when the European figurative compositions were being cast and, therefore, are placed with those reliefs.

Horses (H) p.49a.

The only example illustrated in this sub-category fig.H:1) is a representation of the full frontal view of the head wearing harness. Crescents appear as separate low reliefs placed above and below the portrait. The Iwoki guild was concerned with celestial phenomena and was initiated during the reign of Esigie by two Portuguese. The crescents would then be representative of this Oba and the plaque can be dated to that reign. The horse probably was known in Benin prior to 1486 (Levtzion 1973,177-178; Bovill 1970,143 ff.), but the Europeans were a more direct source.

The harness consists of two leather straps which cross in the center of the head and on which a disk composed of two concentric circles has been placed. The same design is used throughout all the wall plaques, the only variation being the ornateness of the central disk or chamfron. The harness may have been based on European models (Ryder 1978, personal communication; Speltz 1959,pl.140,fig.5) or copied from the Nupe (Nadel 1973,270 ff.) or Hausa, Arab and Berber harness (Smith 1967,105).

Cows and/or oxen (CWS) p.49a.

The rope halter around the upper portion of the head identifies the animal as the domestic variety (CWS:1,2). Read and Dalton described the plaque of the two skulls (fig.SK:1) as oxen, and the heads as that of cows (1899,60). The ikao insert (fig.SK:1) is seen on several of the Oba memorial heads and on various personages represented on the plaques. The foliate and stippled intaglio background is universal herein and on the cow the skin is also stippled. The shape and patterns on the ears are the same as one finds on the horse and leopard.

The ancillary low-reliefed crescents are reliefed on CWS:1 and SK:1. This, again, may be a reference to the Iwoki guild and Esigie.

The cow and oxen are docile animals which can be killed and consumed without restriction (Ben-Amos 1976,245) and are common sacrificial animals (Egharevba 1971,42; Talbot 1926,vol.III.,25).

Sacrificed animals were distributed in a particular manner. Egharevba described that in the Ugigun festival one leg and a tail were reserved for Oranmiyan, one leg for Oliha, etc. (1971,95). Slaughtering at the festivals were usually done by the royal butchers (Iwaranmwen), who belonged to one of the palace associations. They were not only charged with preparing the meat correctly but also had the responsibility of carrying out the Oba's directive as to distribution (see figs.IN:1,2).

The chemical composition of CWS:2 (Berlin III C 8252) is very close to that of P:4 (Berlin III C 8249). The percentages of the following six elements indicate good correlation: Zn: 3.5,3.3 (P:4), Pb: 8.0,5.2; Sn: 2.8,3.1; Ni: 0.19,0.24; As: 0.24,0.20; Sb: 0.88,0.76. CWS:2 also has a similar composition to B:6 and C:4.

The plaque SK:1 has been compared to the high zinc and low lead brass composition of the carnivore's skull (fig.L:2). Chemical data do not exsit for SK:1.

Plants (Pl)

The tree in figure Pl:1 has been described as the palm with fruit (Read and Dalton 1899,62). The leaves were likened to the low reliefed pattern seen in the lower quadrant and throughout the reliefs. No significance has been attached to the number of rosette leaves and this should probably be put down as an artist's variant.

The three fruits of figure Pl:2 have been identified, from top to bottom, as Afreagle paniculata, Telfairia occidentalis, and Strophantus hispidus D.C. (von Luschan 1919,Abb.422; Kennedy 1936,150,35,207). The Afreagle (in Yoruba shanga) is a small tree with very hard fruit, the size of an orange. It is used for small drinking calabashes, pestles, and the pulp is used medicinally for the treatment of dysentry. The Telfairia is a vine with a long woody stem and enormous fruit, elongated in shape, up to two feet in length, some nine inches wide, and has ten fairly sharp longitudinal ribs. It is eaten raw, boiled, or roasted. It also contains large amounts of oil. The Strophantus is found in several varieties and in one the seeds are used as a poison for killing elephants. In the one, most probably seen here, the fruits resemble a small aeroplane propeller, pointed at the ends and up to twelve inches long (Kennedy 1936,150,35,207).

The present writer agrees with the von Luschan interpretation of the lozenge-shaped fruit as Telfairia. There is doubt as to the other two since they could be validly interpreted as representing ivory and palm wine.

Ivory, though in great demand in Europe, was initially not an important Bini export item, and it was only after 1522 that it assumed its great importance (Ryder 1969,38). The tied curved items could be tied ivories or the smaller scrivilios, ready for shipment. The top representation may be the Afreagle but not indicating the fruit as such but rather a palm wine or palm oil container. The rope and loop in the neck area of the gourd suggests it was used perhaps in tree-tapping

operations. Palm oil was an important trade item for the Portuguese, Dutch and English (Ryder 1969,56,84,133) and was probably stored in this type of container. Benin art is often more concerned with hieratic bilateral symmetry than with a correct representation of relative size. Hence, the large size of the Telfairia fruit when compared to the other two is not necessarily defeating for such an interpretation.

Trees and vines were modelled differently by the Bini artisan. The tree has a vertical figuration with unmistakeable branches and trunk. The vine seems to flow over the surface of the basal plane. In figures Pl.3 p.50 and 4 (von Luschan 1919,Abb.388,389) two Binis are gathering fruit from the Telfairia, and in Pl.5 p.51 (BM:M.Reg.98.1-15.174) and 6 p.50 the tree is again represented without the gatherers. The tree could be the von Luschan Afreagle or the common west African baobab. Both species are found in the Edo area and produce rounded fruit. The girth of the baobab is tremendous and the flowers are long-stalked (Kennedy 1936,68). Other possibilities are the cotton wood and the Detarium sengalense Gmelin (the Bini Ukhuror Ogwega). The fruit of the Detarium resembles a mango and the seed is used for magical purposes (Kennedy,95).

The Zn/Pb and Sb/As ratios of Pl.5 (Berlin III C 8383) and Pl.6 (BM:M.Reg.98.1-15.174) are: 1.53,2.38 and 3.4,0.75.

IV. Benin personages

This is by far the largest and most extensive category. Placed herein are not only the Oba and his immediate court such as servants, priests, musicians and hereditary chiefs but others who have a direct relationship to the Oba whether primarily in the economic, military or political sense.

This category is a culmination of the other three. Europeans, inanimate objects, plants and animals are seen throughout, usually in a minor role, as a low-reliefed corner theme or intaglioed on the dress of the ranking Benin personages. It is quite surprising that Benin with its pronounced royal ancestor cult should have produced an art form which employs primarily an animistic iconography. Even Olokun imagery can best be interpreted within the concept of manlike supernaturals. Olokun's subjects are mainly deified heroes, warriors and magicians, who were transformed into rivers and streams (Ben-Amos 1973,28). The Oba is the counterpart of Olokun on land, and the subject of ancestor worship. Perhaps it can best be said that herein one finds in certain of the plaques, such as those which do depict the Oba, an effect complementary to the Bini cosmological view; the duality of ancestor

worship and animism. Both factors at times being indivisible and occupying the same mythical and perceptive spatial positions.

The Oba is most probably rarely depicted on the reliefs, especially subsequent to the reign of Ehengbuda, since by that time the town chiefs were forcing the king more into the role of a deity. This would be in keeping with the tenets of divine kingship. The majority of the reliefs would then depict the hieratic structure with the Oba being the constant invisible viewer. Probably this is as it should be, since the wall reliefs were allegedly placed on the posts in the main palace chamber where the Oba could observe the various chiefs and lesser court functionaries paying homage and fealty to his stewardship.

A number of plaques exist which are not rectangular but have a 'D' or heraldic shape, where the Oba is being supported by the Edaiken or crown prince and the Ezomo or war chief. The size and weight of these pieces leave no doubt that they were constructed as wall hangings. Because of their shape and iconography a separate sub-category within this category has been created.

Oba: coral beaded dress (akpa) (O) pp.52-55

The Oba is always seen in the full frontal view. In this sub-group he is wearing the beaded state dress (akpa) with mudfishes emanating from the waist or substituting for the lower legs and feet (figs.O:1-3). pp.52,53 In two examples a leopard is clutched in either hand, and in the third illustration the hands are holding the animals in the caudal area. The coral or bead coverlet (akpa) extends slightly below the waist and is hemmed with a circumferential row of beads. Crotal or hawk bells are attached to the waist masks (figs.O:1,2) pp.52,53 as well as the beaded collars worn by the leopards.

These bells are ridge-waisted with neck and suspension ring poorly defined. This or similar types of small bells were traded on the Guinea coast in 1555 (Blake 1942,390), and known in Benin prior to 1582 (Ryder 1969,80). Denis Williams believes the long neck ridge-waisted crotal was first introduced during the visit of James Welch in 1590 (1974,272; fig.Bells:3) p.177. Trade routes existed from the Ghana coast to Benin probably no later than the 1470s or 1480s; small items, such as the crotal, could easily have pre-dated the Portuguese entrance into Benin.

The lower garment is bordered with either an incised or reliefed guilloche. A large bead is worn on the chest, suspended from a crossed baldric or beaded necklace. Two of the three pieces have low corner motifs of either the rosette or crescent.

The finial beaded caps are similar, with the main variant being the number of beads on the front of the crown. The headdress is symbolic of the Oba's magical power or possibly phallic. Among the Yoruba, projections from the top of the head may represent vital force. In the case of Sango the double celts projecting from the head are representative of thunderbolts, which the god is capable of hurling to earth. Preparations called ase or vital force are often placed inside skull incisions of priests and priestesses, who then become mediums for the gods. Vertical projections act as a poteau mitan or avenue of communication with the divine (Drewal 1977,43-49) since ingredients embedded inside the central projection or finial atop the Oba's cap insure a particular force and enhance the spiritual presence.

Among the Yoruba the phallus is prominent in the imagery of Sango and Eshu. The latter god's headdress is sometimes carved in this particular shape. The phallus alone is taken as symbolic of Eshu, the trickster god or Yoruba equivalent of Hermes. The shape of the Eshu symbol implies it is not in its procreative function. One of the phallic qualities which dominate Eshu and Sango is self-assertion and masculine striving (Wescott and Morton-Williams 1962,31). Both of these gods are also included in the Bini pantheon and Eshu (Esu) is the premier of the underworld and overlord of knowledge, cunning, art and power (Egharevba 1971,38).

In all three examples the figures are in low relief and rectangular. In Oba:2 and 3 the bottom skirt has the incised pattern seen so frequently on the second variant fish (FS:13-18 pp.43a-45). This, the mudfish and the crocodile masks hanging from the waist (Fig. O:2), are correlative to Olokun. It is assumed that the relief (fig.O:3) in which the Oba is holding the fish coming out of his waist, and with the corner low reliefed crescents, is the earliest. In this work the hem of the skirt is intaglioed and there are amulet pouches hanging from the waist. Further, the use of the crescent as a corner motif seems to predominate more in the earlier pieces than those cast at a later date.

Chemical analyses of plaques O:1 and O:2 (M.Reg.98.1-15.30; M.Reg. 98.1-15.31) show Zn/Pb of 1.82,3.3 and Sb/As of 0.46,2.5. Both ratios are within the range of fifteenth to sixteenth century European materials.

Oba with supporters, coral beaded dress

This group has been sub-divided into four sections: (a) Divine configuration; (b) Oba standing; (c) Oba seated; (d) D-shaped or heraldic reliefs.

Divine configuration

The representation of the Oba with arm supporters follows directly from the previous group. The arms are supported by the Ezomo, on the king's right, and the Edaiken on the left (Talbot 1926,vol.III:586). The leopards have been placed in the lower quadrant facing each other and modelled in a composite view of top and profile with the tail in the stalking position (fig.O:4). The tail was probably placed in this configuration because of space. The Oba is wearing the beaded waist-band from which crocodile heads are suspended without the crotal bell. The pouches or amulets worn by the Oba in the earlier group (fig.O:3) are now seen on the arm supporters. The chevron motif of the lower dress is now intaglio patterns of animal and human heads, foliates, crescents, concentric circles and on the Oba's dress the eben.

The Oba's forearms have been rotated forward and away from the basal plane. Exactly the same has occurred with the heads of the leopards. In addition to the leopard composite view the two arm-supporters also have been executed in a combination of profile and three-quarter view. The legs and arms are very weakly modelled and for some reason throughout the entire range of plaques the legs of the Oba's supporters are done as sticks. The arms and legs are simply stuck on and it is obvious from the photograph that there is a complete lack of tracery throughout the entire composition. No attempt has been made as yet to move away from rectangular or cylindrical modelling and stick-figure composition. In order to retain the isocephalism and hieratic structure the side figures have been moved up from the base line. This also has the effect of moving the Oba forward toward the viewer.

This pose is repeated through the D-shaped plaques and was more than likely adopted by the brass-casters from the probable earlier wood and ivory relief carvings.

Chemical alloy data determined from plaque O:4 (BM:M.Reg.98.1-15.29) show a Zn/Pb ratio of 1.84 and Sb/As of 0.33 (Appendix 2).

Oba standing

The absence of the mudfish lower limbs and feet, as well as the corner low reliefs, is taken to be indicative of a later casting date. Dress and accessories have become standardized with some observable variations of ornateness and patterns seen on the lower sections of the akpa and the waist masks. It seems that as the Oba discards one form of waist-mask it begins to appear on the supporters. One is reminded of

P.53
hand-me-downs. In fig.0:5 the crocodile waist reliefs are now on the arm supporters and the Oba sports what appears to be a human head. One cannot tell by ornateness of dress, e.g. between figs.0:4 and 0:5, which has been made at an earlier or later date. Each plaque could have served a different function or to commemorate different festivals. It is also possible that the central figure in 0:5 is not the Oba but rather the Edaiken or crown prince or another. The seventeenth century reporters do mention how personages of high rank have their arms supported.

The interlocking diamond with interspersed circles is a common motif in Benin art and appears on the European fully sculptured figures as an armour pattern (PFS:1). P.139 It is also seen being worn by the three figures in 0:5 and 0:6.

The contrast between figure 0:6 and the other two examples in this sub-group is striking (figs.0:5,7). P.54 The circled-cross has replaced the more usual foliate background. The beads on the akpa are represented by incised bands instead of the more usual relief. The high coral chokers have been replaced by a double collar with an inner and outer strand of beads. The waist band is now solid and from it the pouch or amulet has been hung. The three pairs of feet are parallel to the base plane and scarcely modelled. Overall the plaque is a flat rectangular composition with a head-to-body ratio more nearly approaching that of the European model of 7 to 1. The observer quickly obtains the feeling that he is viewing nothing more than dressed-up stick figures with the only compelling attention being paid primarily to the ornateness of the bottom skirt. The closeness to the European head-to-body standard, the very flatness of the relief, and the greater attention being paid to the patterns of the akpa, indicate to this writer that one is seeing one of the earliest ventures into figurative two-dimensional metal casting.

In figure 0:7 the Oba's arms have again been rotated forward to emphasize either the axe or the blacksmith's hammer which is being held in the right hand (Read and Dalton 1899,49; Dark 1973,100).

The focus on the arm and hand through the arm supporters and the ritual object in the right hand would be expected. The hand is considered among the Bini as a symbol of prestige and wealth, as well as vigour and industry, in whatever activity the individual is occupied (Bradbury 1973,265). Ihiexu, the ceremony of the cult of the hand, was performed in conjunction with Isiokuo, the major war ceremony. One informant told Bradbury that his father used to worship both Ogun and his hand before the Isiokuo festival, and before setting out on a war campaign. The instrument being in the same hand as that which is

supported by the Ezomo, and used by the Oba in ancestral sacrifices (Talbot 1926,vol.III:308) is another example of multi-variant meaning, the connection to both the spiritual and political aspects of divine kingship.

Oba seated pp.54-55

This sub-category is the final temporal development of the Oba state portraits. In three of the four bas-reliefs (figs.0:8,9,10,11) the Oba's arms are supported by the Uzamas, or hereditary chiefs, who are kneeling and facing the Oba with their heads and bodies in a more complete three-quarter view, and lower limbs in profile. Again, the Oba holds the axe or hammer in his right hand. The crossed baldric and coral necklace with large chest bead have disappeared. It is only in this final sub-category that Europeans begin to make their appearance as low reliefed bust figures, usually in profile, in the upper corners of the plaques.

The beaded coral caps with finials and side flaps have now evolved into a higher crown with larger side flaps. The large tubular crown beads have reappeared with the Oba in figure 0:11 p.54 wearing five. The dress has become still more ornate with the appearance of distinct horizontal beaded bands integral to the akpa and lower dress portions. In all cases the hem design is the two-stranded reliefed guilloche. The pagnes or lower skirts of the figures now embody a greater variety of designs which include the double guilloche with cross-hatching, chevrons and the interlocking diamond bordered by chevrons and circles. The artisan has taken more licence with the available designs and now seems to be somewhat engaged in trying to fill the available space with the known symbols.

The Oba's stool is spool-shaped with a cylindrical section to which flat discs are appended both on top and bottom. It has been likened to an oversize version of the ekpokin or round box made of bark and leather for holding kola nuts, and at one time supposedly a brass version of this type of stool existed (Dark 1973,100).

Also, in this group there is a greater attempt at using negative space particularly in the area of the facial orb and malar, and in the inner portion of the skirt to which the visible portions of the legs are attached (figs.0:8,10 pp.54,55). The still further increase in ornateness, height of relief, variations of dress patterns, and the presence of European bust figures, all signify a further consistency in the development over time of greater casting skills and advances in the use

of the medium. The plentifulness of brass may have speeded these developments.

Chemical alloy data of plaques O:8 and 11 (BM:M.Reg.98.1-15.26 and M.Reg.98.1-15.23) show Zn/Pb ratios of 1.37 and 4.02 and Sb/As of 1.0 and 2.7. The rivet from O:8 analyzed as pure copper (Appendix 2).

Large shield or 'D'-shaped plaques (D) pp.56-58

The unique shape of the base plane with its large areas of negative space warrant a separate sub-category for these reliefs. The use of so much Olokun imagery strongly suggests an interpretation connected to the god of the sea. On two of the three examples, figs.D:1,2,3, pp.56,57,58 the python is seen crawling head-down from between the Oba's legs and gripping the elephant's trunk, which terminates in a clenched right hand holding palm leaves. The Bini believe the form and function of the hand is similar to the elephant's trunk, and the leaves have been explained as young palm leaves (Bradbury 1973,270).

The word ikenga or ikegobo has two connotations: it refers to the cult of the hand-worshipper's individuality, associated with the whole arm, and the cult object itself (see Read and Dalton 1899, pl.IX:1,2; Bradbury 1973,pl. I-IV, for examples of the cult object). Ikenga can also be translated as wrist, and when informants refer to ikenga they often grasp the right wrist with the fingers of the left hand to indicate firmness and power, as the right hand is considered to be the spiritual hand (Bradbury,262).

The hand is associated with success in terms of wealth and prestige of the individual in relation to human society and the world in general. It is a symbol of vigour and enterprise in any undertaking (Bradbury, 265). In the instant series the fish-legged Oba being supported by the Edaiken and Ezomo, as well as the three figures wearing coral beaded dress and caps, indicate a state occasion. The snake holding the arm is a double indicator: of the firmness and power of the Oba, both in a temporal and cosmological sense, since the Oba is the counterpart on land of the Olokun. The symbol may also be read as the Oba's resolve for moral good, since in the kingdom of Olokun there is only the capacity for good.

The crocodile, frog, and python are amphibious and most probably indicate the meeting of the two worlds at the river bank, the point of contact and mediation between the two worlds (Ben-Amos 1973,30).

Among the Bini it is forbidden to have a direct reference to any of the earthly functions of an Oba. If the Oba is sleeping one should say

Ekpen rihu, meaning the leopard is in the shelter (Egharevba 1971,99). The same type of metaphor must be used when referring to the Oba's death. The python gripping the upside-down right hand could be given an alternative explanation of the death of an Oba and the plaque would be commemorative of Ohen (ca. 1334-1370). This Oba is reputed to have been the founder of the Olokun cult.

The imagery is consistent with a shrine or altar work either to the Oba or Olokun. This larger variety of the D-shaped or arch plaque is most probably the successor of the earlier pieces depicting the same subject (Fig.EB:4, Berlin III C 19276).

For some reason the Bini scarcely model the legs and feet of the kneeling supporters, throughout the entire series of Benin wall plaques. These appendages are merely tacked on, more as an afterthought than as an integral portion of the sculpture. They do not seem to be really needed and one is often quite surprised when they are eventually located, because at first glance they are usually overlooked. It is suggested, because of the isocephalism of the three figures, emphasis had to be given to the lower hieratic position of the supporters, so the legs and feet were very cursorily modelled. The weakness here also has another positive effect, because it does not detract from the overwhelming power of the fish legs of the central figure.

These particular three reliefs can best be seen if they are envisioned primarily as sculpture in the round, with the plinth rotated some ninety degrees to act as the base-plane from which the figures could be attached. The large areas of negative space help to enforce the concept of full sculpture, even to the similarity of the squared holes, which are often seen atop the full sculpture sockels.

In addition to the great similarity in iconography and alloy chemistry between these plaques and the eighteenth century altar pieces there is a marked similarity between the anatomy of these figures, especially in the area of the face. The planar relations between the orb, nasal bones and frontal bones are the same, and most particularly the angle formed by the frontal and nasal bones. In several of the plaques (figs.D:1,2) the lozenge-shaped eyelids are also striated.

For all of the above reasons, plus those which are discussed in an earlier section dealing with comparisons, these pieces are Period II sculptures.

War series (WS) pp. 59-60

Several or all of the plaques in this group are relatable directly to the Ahamman Giwa tradition (figs.WS:1-6). pp. 59-60 Since it could have been

the Oba who directly led the Binis against Igbon a separate sub-category immediately following the Oba portraits was created.

If this series does depict the Oba they must relate to a period prior to the death of Ehengbuda. Afterwards the king relinquished this responsibility by edict of the chiefs council. The armies were then led by either the Iyase or Ezomo (Egharevba 1968,33).

According to the Ahamman Giwa legend, plaque casting began during the reign of Esigie, but the first war commemorative relief was cast during the Orhogbua (Osogboa) period. Orhogbua was known to have campaigned in the Lagos area (Jungwirth 1968,185; Egharevba 1968,29). Igbon may be a reference to Egba, a Yoruba area, between the Igun and Oueme rivers (Hirschberg 1965,121). It is easily within striking distance from the main war camp at Lagos. Not only the similarity in names but the facial markings of the captured figures may well indicate Yoruba tribesmen (Eyo 1977,pl.160; Krieger and Kutscher 1960,pls.18,19; Krieger 1969,vol.I.,pl.196; vol.II.,pl.177). The armament of the horse-man and the captured warrior (fig.WS:1) is consistent with known Yoruba weaponry (Smith 1967,92 ff.).

The reported traditions do not mention any other military campaigns waged by Orhogbua as field commander. In the late 1570s he is reputed to have sent the Ezomo, Agban, to teach the Obis on the eastern fringe of the empire a severe lesson, as they had neglected to pay the necessary tribute. The first town captured after a two-year struggle was Igidi, later renamed by Ehengbuda (Orhogbua's successor) Agbon in commemoration of the Ezomo's victory. The name of the city was eventually corrupted to Agbor (Egharevba 1968,32). Agbon or Agbor is a transition area which was subject to both Benin and Ibo influence, though it ostensibly recognized Benin suzerainity. Ibo facial markings are similar to those seen on the captured individuals (Talbot 1926,vol.III,figs.167,229).

Serious consideration must also be given to the victory of Benin over a cavalry force that occurred a generation or so earlier than the report of several early seventeenth century Dutch visitors to Benin (Ryder 1969,15). This may have been the famous Oyo war, ca. 1578, when Benin defeated either a Nupe or Oyo Yoruba army (Ryder,15). As a result of this victory the Benin kingdom was able to expand to the northeast through the Ekiti Yoruba area as far as Otun, and subsequently enjoyed a common boundary with the Oyo empire. The Iyase commanded the army in this campaign, and a plaque fragment of a Benin personage similarly dressed to the central figure on several of the plaques herein has been identified as the Iyase (Talbot 1926,vol.III, fig.144). The captured war chieftain or king seen astride a horse as well as the smaller kneeling

figure (fig.WS:1) have facial markings which also could be interpreted as either Nupe or Oyo (Johnson 1973,161; Nadel 1973,61,128,405). The horse could be either a rank indicator or a reference to the famous Oyo cavalry.

There is also a reference in Egharevba (1968,31) concerning the same Iyase who was victorious in the Oyo war later successfully campaigning against the Ibo on the western side of the Niger.

Certain sections of the Ahamman Giwa and Agbor war traditions are seemingly in conflict. It was Osogboa (Orhogbua) who requested Giwa and his boys to cast a plaque to commemorate the victory over Igbon-Ibo. If Igbon is Agbon (Agbor) then it could not have been Orhogbua who requested the plaques because he was dead when victory was achieved and Ehengbuda was on the throne. The death of an Oba is a significant event and nowhere in the Giwa tradition is there a mention of Orhogbua's demise unless the phrases which pertain to the king nailing the plaques on the wall of his house is a reference to Ehengbuda.

Traditional representations of time may have little or no relation to historical notions, and occasionally seemingly irreconcilable differences can only be resolved by using this principle. What may have occurred when Roupell wrote down the Ahamman Giwa story was that his informants were referring to Ehengbuda as the Oba who nailed the plaques. However, since the war began during his predecessor's reign they gave Orhogbua credit for the series.

The two most significant indices, the over emphasized facial markings and the deceased rider astride a horse indicate the capture and subsequent death of either a non-Bini warrior chief or king. The leopard dress of the deceased (figs.WS:1,2) is usually representative of a king's totem and further emphasizes the exalted position of the rider, and could denote a relation to the Benin or the Ibo leopard society (Leonard 1906,324). The only major reference to the capture of a king and his death is in the Ahamman Giwa legend, where the king of Igbon fell to the Benin troops.

The differences in the examples in this sub-category are primarily differences in dress and numbers of figures. The most significant variation is seen in figure WS:6, when compared to the other castings. Here the head dress has become more ornate, and the picture plane is now crowded with a larger number of figures. The captured rider and the figure directly above are wearing caps and a type of hauberk or leather apron which are reminiscent of the equestrian figures (fig. FE:1). Based on this somewhat tenuous thread to cavalry the present

writer is more inclined to view this particular work as narrative of the Oyo or Nupe engagement. The overwhelming overall similarity between all the pieces is most probably the result of casting these plaques within a very close time of each other as both the Igbon and Oyo wars took place ca. 1570s.

A most interesting fashion item seen in this series are the beards worn by the Benin warriors. Beards are only occasionally observed on the Bini while it is rare to find a European depicted without same. The variation in length and shape between the two personages is probably an artistic accentuation of the basic physiological differences between the negroid and caucasoid races. Both Nyendael and Dapper comment upon Bini dress but do not specifically mention beards. The closest remarks are found in Dapper where his informant is describing clothing and reports that after marriage Bini men wear clothing and ".... allow their hair to grow without ever again having to shave it with a knife." (Hodgkin 1975,162). The beard may have been a novelty item, perhaps adapted from the Europeans, or even a short lived indigenous fashion. Whatever the reason, it is only seen being worn by either Europeans or Bini warriors, and may be one of the parameters to be considered in dating.

Almost without exception the Benin warriors are wearing leopard teeth collars and pyramidal or square bells on the chest. This is the same type integral unit seen in figs IO:8,9. The ornateness of the collar and bell could be a rank indicator among the military. It has always been assumed the teeth were from the leopard and worn as much from superstitious motives as purposes of defence (Read and Dalton 1899,23). The leopard motif is also seen very often on the warriors' chest armour (see Read and Dalton,57 for an illustration of a Benin warrior's coat). The significance of the chest bands were probably as a rank indicator and to serve the practical function of preventing the collar and bell from obstructing the vision of the warrior or from being torn off in battle. The ties also permitted various charms and amulets to be hung around the person.

The pyramid or square bell is almost always seen in connection with a warrior or as part of an ancestor shrine (see Akpata 1937,pl.II). It is conspicuously absent on the Oba, high ranking personages not in military dress, and low level court officials, such as servants and musicians. In the Congo the single bell's non-musical functions were most important. It served to signal from one army to another and lead soldiers in battle. In some cultures it could only be worn by soldiers

who had shown valor (Vansina 1969,190). In southern Nigeria it also is a sacred item and status indicator (Neaher 1976,59,146). The Bini bell is decorated in relief with a variety of motifs, some of which are: leopard's heads; serpents, spirals, human faces, etc. (fig.Bells: 1). The quadrangular form of these bells is unprecedented in west Africa, and is thought to be a local evolvement during the early days of brass-casting (Neaher 1979,46; Vansina,169).

There is a second type or waisted bell worn by the large central figures and described by Neaher as being conical, with a flared lower rim, usually thinly cast, and approximately fifteen centimeters high. Occasionally a face bell is observed (Nehaer,43). Chemical analyses of two face waist bells (figs.IU:1, III C 10876; BM:1909.8-11.3, Foreman and Dark 1960,pls.90,91; Appendix 2); fig.Bells:2 indicate they are true bronzes, but with insufficient lead contents to qualify as a possible descendent from Igbo-Ukwu. Other types of bells are occasionally seen among the Bini. When bells are considered along with the overwhelming variety and quantity of metal castings they do not emerge as an item of primary material culture (Neaher 1979,46).

The Benin warrior on the left in figure WS:1 is wearing a high crowned cowrie shell hat. The earliest reference to shells being used as a trade item among the Binis is found in the early sixteenth century work of Pacheco Pereira (Kimble 1937,145) in which he wrote:

> "Some thirty-five leagues beyond Rio do Padram, of which we have spoken above, is the small river called Rio do Mondeguo; here the coast forms a bay of a little more than a league and at its mouth there are two small islands, low and level and sparsely wooded, called Ilhas das Cabras. They are very near the mainland and the negroes who inhabit them belong to the lordship of Maniconguo, the Conguo country extending even beyond them. The negroes of these islands pick up small shells (of the size of pine nuts in their shell) which they call "zimbos". These are used as money in the country of Maniconguo; fifty of them will buy a hen, and three hundred a goat and so forth; and when Maniconguo wishes to confer a favor on one of his nobles or reward a service done to him, he orders him to be given a certain number of these "zimbos", just as our princes bestow money of these realms on those who deserve it, and often on those who do not. In the country of Beny, concerning which I wrote in the fourth paragraph of the seventh chapter of the second book, they use as money shells which they call "iguou", a little larger than these "zimbos" of Maniconguo; they use them to buy everything and he who has most of them is the richest."

It is clear the Portuguese did not introduce cowries to Benin. Ryder believes that since iguos were of different origin than the Congolese zimbo and the Portuguese could dispose of the Maldive Islands cowries came to Benin through overland routes from east Africa (1969,60).

It was not until the 1520s that Indian cowries are mentioned as a trade item to be disposed solely on the mainland by the Portuguese (1969,61). By 1522 cowries had become as important as manillas in trade with Benin.

Large numbers of cowries were shipped to Benin in the first third of the sixteenth century and the cowrie began to lose value. In ca. 1540 da Barros wrote that in some years as much as two or three thousand quintals of cowries are brought to Portugal and re-exported to Guinea and the kingdoms of Benin and Congo (Ryder 1969,61). Even with the large influx of shells into Benin and their decreasing value they nevertheless remained the primary currency of Benin, and as late as the first quarter of the seventeenth century the cowrie was still being sought after (Hodgkin 1975,166 - translation from Dapper 1668 pertaining to Dutch trade items of the 1620s-1640s).

The side flapped and peaked metal or cloth helmets worn by several of the vanquished (figs.WS:2,4) p.59 are consistent with mid-sixteenth century European type headgear. In an earlier section, connected with the Europeans, their arms and armour were discussed, including the complicated system of quillons and guards on the swords and daggers of the period. The enemies' swords or daggers have similar protective devices (figs.WS:1,3,4). p.59

The lower wrap around garment called the 'beleku' (Read and Dalton 1899,20) or by its more common name 'pagne' was usually composed of several underneath layers. The predominant motif of these garments is either the guilloche or simple edge banding, and that of the outer garment the leopard skin.

Cloth is symbolic in two major interrelated ways: the marking of sacred space and individual enhancement (Ben-Amos 1978,52). When priests or chiefs put on ceremonial attire they are considered as possessing special powers and abilities. For major festivals the Oba wears red ceremonial cloth woven or appliqued by the Benin guild (Ben-Amos,53). The cloth was usually woven locally for both garments and other ceremonial uses.

In addition to cotton woven raffia was also used in both clothing and mats for shrine purposes. Special raffia cloths (<u>okhuen</u>) and caps (<u>oro</u>) were made for chiefs to be used in rituals in order to set them off from both commoners who could not wear such attire and the Oba who wore coral beaded dress. Ben-Amos reported that in the plaque which depicts the title holders <u>Osa</u> and <u>Osuan</u> supporting the arms of the Oba (fig.CFS:1) these two priests are wearing caps identical to that of the Oba but whereas his was made of coral beads theirs was woven from palm (1978,52).

This is a marvellous series because for the only time in all of the nine hundred or so wall plaques the artisans gave vent to their imaginations and created crowded cacophonous compositions which managed to capture the pandemonium, savagery and stupidity of war. It is as if the modellers spent their energies on these six plaques and then decided to formularize the balance of the reliefs. One sees high relief (WS:3,5,6) and a variety of views, varying from full profile (WS:5), to three-quarter views (WS:3,2,1) to the more common full-frontal. There is even an attempt at a slight contraposto in WS:3, where the victor's left leg is slightly turned and foreshortened. WS:6 on the basis of rigidity and full frontal view predominance plus the high relief of the front portion of the horse and the ada may well have been the last plaque in the series. It is unfortunate that only this series and a few others display a certain quality of biomorphicism. If only they never became enmeshed in their own weltanschauung.

Three of the plaques (WS:1,2,3) have been sampled (M.Reg.98.1-15.48; M.Reg.98.1-15.49; M.Reg.98.1-15.47; see British Museum data in Appendix 2), and have Zn/Pb ratios of 0.82,1.22,1.65 and Sb/As ratios of 3.2, 2.67,3.33. The nickel and tin alloy contents are also comparable. There is no way of knowing but considering the morphological similarities and the alloy contents one could only suggest these three were made in close proximity to one another. The Bini constantly repeat themes and to cast more than one of the same theme at any one time seems to be a most common occurrence.

Group compositions

This sub-category is exclusively non-military group compositions featuring the Oba and/or other high ranking Benin personages. The central figure is seen wearing the crossed baldric which is theoretically the mark of the Oba. However, in practice the Oba gifted high ranking chiefs with the attribute when he may have been forced to do so by the chiefs and his advisors (Ben-Amos 1979, personal communication). Because of the dearth of information about many Bini rituals and the Oba becoming more and more secluded during the latter half of the sixteenth century proper identification of the particular personage is extremely difficult. Further study may well reveal that many of the identifications and groupings are not correct.

There is a further sub-division into: 1. Equestrian central figure; 2. Central figure standing; 3. Non-hieratic representations.

Equestrian central figure (ECF) pp.61-62

Horses are thought to have been used in the central Sudan before the founding of Kanem and Bornu, and the Hausa emirates, around 1000 A.D. It was from the Sudan that the small horses or the 'Southern Sudanic breed' spread into Ghana and the Guinea coast. From the fourteenth century onwards the larger horse started being imported from north Africa. Leo Africanus reported that the best horses in Timbuktu were purchased from Barbarie and these originally were imported from Europe. The same practice existed in Bornu. In the late fifteenth and sixteenth centuries the Wolof, on the south coast of the Senegal, were buying horses from the Portuguese as well as in the interior (Smith 1976,120-121).

Horse breeding took place in some parts of the Sudan and an east-west trade developed. The horses bred in the Mandara country, east of Adamawa, have been labelled the 'Bornu/Mandara breed' and were the type used by both the Sokoto caliphate and probably the Oyo cavalry before the end of the eighteenth century (Smith,122).

There are constant references to the two main types of horses, the smaller local breed (ponies?) and the larger ones which were imported or bred in the central Sudan down to the nineteenth century (Smith,122).

It was difficult to maintain horses in forest areas because of the shifting patterns of the Tsetse fly. The average life was estimated at no more than six months. There was also a lack of adequate fodder and in the Yoruba area a man who kept a horse but without a groom was considered as living beyond his means. In the savannah country some horses managed to acquire an immunity to the fly and it was probably this which allowed the evolution of the southern sudanic horses (Smith 1976,122-123).

Both the Portuguese and Dutch traded horses along the Guinea coast (Blake 1942,87,172; Ryder 1969,85). In the 1620s the Dutch 'D.R.' who was in Benin observed that the European larger horse was preferred (Ryder,85-86). In 1734 the Dutch factor at Ughoton was escorted to the capital by two fiadors with horses and near the end of the century Captain Landolphe was offered the same convenience but chose to make the journey being carried in a hammock (Ryder,181). The horse was primarily a prestige item in Benin and the only serious reference to Benin cavalry is reported by Richard Burton in 1862 who, noticing the absence of horses, was told they were all engaged in the Ishan fighting (Ryder 1969,259 n.3).

The horse trappings may be based upon European and more particularly Iberian models. In 1505 the Casa da Mina in Lisbon bought for the Oba a complete set of harness comprising head stalls of enamelled copper, silver plated stirrups, breast plates and spurs. These were of Iberian manufacture (Ryder 1978, personal communication).

The Oba appeared before the populace once a year, on an established feast day, beautifully adorned and riding a horse (Hodgkin 1975,169). Dapper also refers to another day when the king displays his riches before the people and subsequently awards either material presents and/ or governmental offices to the well deserving (Hodgkin,169-170). Talbot has commented upon these two occasions and believed they were the same day (1926,vol.III 579). However, what Dapper described were two different festivals: Ugioro, when the Oba and chiefs appear in public richly dressed and the ceremonial cast brass bird is symbolically beaten on the beak by the Oba and the chiefs. The other or Ihieku festival is when the Oba's coral wealth is washed and includes a great ceremony (Egharevba 1968,85,89).

The present writer is of the opinion: the Oba is rarely depicted on the wall plaques and the individuals (figs.ECF:1,2,3) pp.61,62 whose arms are being supported are more than likely either high ranking hereditary nobles or chiefs, not necessarily from Benin city. A seventeenth century Dutch source describing the Oba and his court reported that the Oba had many gentlemen who when they came to court ride upon horses and sit upon these horses as women do in Europe. Some of the riders are covered with shields held by attendants to protect them from the sun. In these processions one usually sees the rider's arms being supported and other accompanying individuals playing drums, horns and flutes (Hodgkin 1975, 157; Ryder 1969, Appendix II).

The identification of the particular ceremony or festival again can only be surmised. The ornateness of dress, and the accoutrements of high office such as the arm supporters, overhead shields, horse, coronet or head beads and sheathed ada indicate either the Oba, Edaiken or Ezomo (Egharevba 1971,98). The lack of ankle jewellery by the supporters probably points more to the Bini personage being the Edaiken or Ezomo (Egharevba,98).

The chemical alloy content of the three examples (Berlin III C 8056; BM:M.Reg.98.1-15.45, M.Reg.98.1-15.44) are within the general range of alloy plaque materials and have the following ratios: Zn/Pb of 4.5,1.5, 1.64 and Sb/As of 2.66,2.06,5.0. Plaque ECF:1 has been discussed

earlier; a transition work between the plaques and the eighteenth century altar and shrine full sculptures. The other two (ECF:2,3) are assigned to Period I, with ECF:3 being similar to its military counterpart EQM:1.

Central figure standing (CFS) pp.62-65

The two cannibals Osa and Osuan came to the city during the reign of Ewuare (Egharevba 1968,15-16). Other traditions recount how the duo were followers of Oranmiyan and when Eweka I became the first Oba of the second dynasty Oranmiyan sent them back to Benin to become his son's advisors (Ebohon 1972,48). Eweka placed them in charge of the shrines Ora and Uwen. Osuan was versed in the arts of medicine and charm making and used them to help the Oba administer the kingdom. They also support the Oba's arms on coronation day, during the Ague fast and at the Oduduwa ceremonies (Egharevba 1971,93). Figures CFS: pp.62,63 1,2 denote the Oba with his arms being supported by the two cannibals during one of the three ceremonies. The only significant differences between the two reliefs are: height of relief, greater cylindrical modelling on CFS:1, use of ankle rattles instead of beads and bells and somewhat more ornateness in dress especially on the flanking figures. Again one cannot say with certainty which work preceded the other because of the Bini penchant for constant repetition of themes. If one is not seeing a possible artistic variant then CFS:1 would be the later work because it is closer to the neomorphic solution.

In the second group, fig.CFS:4, p.64 the large bald central figure is again being supported by smaller flanking figures. The utensils are suggestive of eating and drinking (Wolf 1972,pl.7). This interpretation seems to violate the Bini canons as the Oba and lesser personages are never seen eating. This plaque may indicate the Oba or possibly a titled chief during the Isiokuo festival which honors Ogun, god of war. This would correlate with the blacksmith's tools held by the retainers. The main disturbing feature is the absence of hair on the central figure which is a Benin sign for the mourning of a deceased Oba (Egharevba 1971,108).

pp.63,64

In the third group (figs.CFS:3,5) the picture plane has again become more crowded with figures; five representations instead of the more usual three. The overhead protective shields are modelled in full sculpture, as well as the horns and other paraphernalia worn about the waists of the larger flanking figures. These castings are almost replicas of the equestrian figures. The most significant difference is

the prominent use of brocaded cloth. This was exported to west Africa by the Dutch as late as 1646 (Ryder 1969,97).

The three plaques, figures CFS:6,7,8, are rather rare works and may have more of a religious significance than the others in this sub-category.

Joao Affonso D'Aveiro the Portuguese emissary to Benin upon returning to Portugal in 1487 reported the following to King Dom Joao. In order to write the last passages 'with authority' deBarros averred that in the year 1540 he queried one of the Benin ambassadors to Portugal who accompanied D'Aveiro and received a similar explanation.

> "..... was that to the east of Benny at twenty moons journey - which according to their account, and the short journeys they make would be about two hundred fifity of our leagues - their lived the most powerful monarch of these parts called the Ogane. Among the pagan chiefs of the territories of Beny he was held in as great veneration as is the Supreme Pontiff with us. In accordance with a very ancient custom, the King of Beny, on ascending the throne, sends ambassadors to him with gifts to announce that by the decease of his predecessor he has succeeded to the Kingdom of Beny, and to request confirmation. To signify his assent, the Prince Ogane sends the king a staff and head-piece of shining brass fashioned like a Spanish helmet, in place of a crown and sceptre. He also sends a cross, likewise of brass, to be worn round the neck, a holy and religious emblem similar to that worn by the Commendatores of the order of Saint John. Without these emblems the people do not recognize him as a lawful ruler, nor can he call himself truly king." "As a kind of reward for the hardships of such a journey, the ambassador receives a small cross, similar to that sent to the king, which is thrown round his neck to signify that he is free and exempt from all servitudes and privileged in his native country." "..... when in the year fifteen hundred and forty certain ambassadors of the King of Beny came to this kingdom, among whom was a man about seventy years of age who was wearing one of these crosses I asked him the reason and he gave an explanation similar to the above....." (deBarros 1552; Hodgkin 1975,124 ff.; Crone 1937,126 ff.)

The 'Ogane' referred to in the deBarros chronicle has been interpreted as a direct reference to the Oni of Ife whom the Edo call the Oghene (Bradbury 1971,20). The Bini wearing the maltese cross (fig. would then be the messenger sent by the deceased Oba's successor to the Ogane for confirmation of title. There is another tradition that the wearers of the cross are priests of Osa (Ohen-Osa), and there are four such servants (Ben-Amos 1979, personal communication).

The Ague or native fast occurred fourteen days after the Isiokuo festival and lasted seven days. Those who partake in the ceremony, including the Oba, receive a cross Ohensa (Ohen-Osa) of Akpakpava, the descendents of the catholic missionaries of the sixteenth and

seventeenth centuries (Egharevba 1971,88; Melzian 1955,99; von Sydow 1943,89 ff.). Melzian places the cult to the reign of Esigie during the middle of the sixteenth century (1955,99; Egharevba 1968,29).

Oral tradition strongly indicates the maltese cross is not a Benin invention but entered into their iconology from either African or European sources. The form may very well have been seen in Benin, after the Portuguese advent, on rosaries, chasubles, croziers or any number of other items (von Sydow 1943, 89 ff.). This argument is somewhat strengthened because the maltese cross is seen among the Tschokwe of Angola and Kongo, and the most apparent common denominator between the two was the presence of the Portuguese in the sixteenth century. The cross or 'X' is a bsic copper casting shape in the Kongo and at one time served as money in the area. Further, the form is well known throughout Africa and the middle East and is observed on Mesopotamian pottery over four thousand years old as well as on Byzantium and Coptic art and ecclesiastical ware of much more recent vintage. At present, to postulate a pre- or post-Portuguese hypothesis is premature as the evidence is equally balanced between the two schools. There does exist a connection between the Ogane tradition and Osa because at the time of the crowning of the Oba the cross is placed on the ada or sword of state carried by the new Oba who leads the procession to the Osa shrine (Melzian 1955,99).

These plaques are interpreted as representative of the Ague fast, with the Oba as the central figure, and in fig.CFS:6 the Osa-ohen on the Oba's right or spiritual side, and an armed retainer on the left or political side. Another example of the two halves of the Oba's kingship. The absence of state (coral dress) indicates that the king would be engaging in a personal ceremony. The staff in the Oba's right hand is a reference to Uwenrhioton or peeled wand as an emblem of worship. An alternative explanation is that both works are indicative of the installation of a new Oba. The absence of coral dress would also be correlative of the installation ceremonies. Also, during the Ague the Oba remains hidden or invisible to all men (Melzian 1955,99). The latter explanation seems more logical unless these reliefs are neither commemorative or narrative but Osa altar pieces.

P.65

In figure CFS:9 the larger dressed figure is pointing with the left hand to the nude youth who is holding what has been identified as a broken round rattle in his cupped hands (von Luschan 1919,Abb.360). This relief is the alleged Ohuan plaque, in which Ehengbuda is pointing to the crowned prince and advising that the Edaiken is a male and can

therefore inherit. The rattle[1] would be representative of the incident when the Oba caused the Edaiken and his servants to either dance or walk naked from the crown prince's residence at Uselu. Prior to the procession the participants had their hair cut and styled and were subsequently called Ifieto or hair curlers. During large ceremonial or festive occasions the Ifieto dance and sing in front of the marching group (Egharevba 1968,34). The asymmetrical collar jewellery is invariably seen on figures wearing the double finial cap. The shape of the jewellery is very remindful of metal chain used to hang lamps or in horse trappings.

The hieratic structure of the compositions and the simple expedient of placing the supporting figures on a higher level has created a natural perspective. This becomes more pronounced as the viewer to sculpture distance increases.

Benin chiefs (non-hieratic representations) (CNH) pp. 66-67

Oro is a bird with a long beak. When Esigie was waging his second war against Udo, the long beaked bird was heard. The Oba was advised that the bird was foretelling a Benin defeat. The Oba warned his followers not to be deterred by the cries of a bird. Benin finally prevailed in the struggle, and as a memoriam to the bird Esigie had it cast in brass. During the Ugioro festival the Oba and the chiefs dance with the Ahianwenro (cast in brass) beating it on the beak (fig.CNH:1). P.66

The large instrument held in figure CNH:2 P.66 has been labelled both a sistrum (Ling Roth 1903,figs.225-228,260-261) and a ceremonial or double bell (von Luschan 1919,Abb.297-298; Dark and Hill 1962,fig.5). Generally sistrums are not found in west Africa (Campbell 1979, personal communication). Although a percussion instrument the sistrum's sound is produced by shaking instead of beating, when the discs which are strung in rows by means of wires through their centers collide.

It is believed the bells shown herein were held by an attendant, and when the Oba was pleased at some occurrence he would nod his head so they could be struck with a wand or clapper (Ling Roth 1903,fig.228). The reliefed Oba figure on the front of the bells does lend weight to the Ling Roth interpretation. The plaque when viewed from the side (fig.CNH:2a) P.66 indicates the bells were cast in high relief but only frontally modelled.

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1. Dr Richard Campbell of the Ethno-Musicology Section, Museum für Völkerkunde Berlin is somewhat sceptical of the identification of this container as a musical instrument. He believes it is indicative of an offering box.

The beaded headband each figure is wearing is symbolic of the death of Ezoti, the oldest son of Ewuare. Ezoti had just become or was about to become Oba when he was shot in the forehead with a poisoned arrow. The beads he was wearing became stained with blood (Egharevba 1968,19). To commemorate the occasion chiefs are allowed to wear the beaded band. The Edaiken and Ezomo are permitted to wear the coronet and the present writer is not sure whether the depiction is representative of one or the other.

Waist rattles are worn by the bell-holder. The high choker collar, ornate dress and neck jewellery, brocaded pagnes and the very high relief of the double percussion bell indicate this plaque should be assigned to the latter reaches of Period I.

Also placed in this group are the reliefs (fig.CNH:3) of ornate dressed figures holding leopard skin covered rectangular shapes. The two right side individuals who are holding these shapes have a strap coming over their right shoulder to which these items may be tied. The hat or hair style is reminiscent of the Dark type 3 heads. In fact if the entire head, which would include the coral choker and side plaits are compared to the type 3 heads the only thing missing on the plaques would be the large cap beads. One would expect the plaque figures who are not the Oba to be less ornately adorned than the king.

Three D-shaped plaques are in this group because of the probable correlation to Osa and Osuan (CNH:6) and because they are non-hieratic compositions. In CNH:4 and 6 the blacksmith's hammer is being held in the left hand and in CNH:5 it is seen in the right hand of the figures. The right is the spiritual hand. It is unknown why this particular configuration was chosen to represent the priests or in the case of CNH:5 kings. In CNH:4 the 'D' is exactly reversed. The staffs being held are most probably indicators of rank. The flattened top is remindful of the anvil used in west Africa. CNH:6 is a reliefed version of the same composition in full sculpture (Pitt Rivers 1900,figs.90,91, 293,294).

The alloy content of CNH:1 (M.Reg.98.1-15.177) and CNH:5 (M.Reg. 1900.7-20.2) are within the range of the European plaque brasses (ratios of these two reliefs are: Zn/Pb of 3.41,2.89-3.25; Sb/As of 2.8,0.83-2.89). CNH:4 (M.Reg.99.6-10.2) has a Zn/Pb of 40.6 and Sb/As which is not calculable (Appendix 2). The very high zinc of 34.50 percent and the corresponding low lead of 0.85 percent is in keeping with eighteenth and nineteenth century materials. Haedecke (1973,229-233) has demonstrated that thermodynamically the maximum zinc which could diffuse into the

copper matrix, in the cementation process is 30-31 percent. Hence, the higher zinc content found in CNH:4, is most probably the result of the direct additive process which did not come into use in Europe until sometime in the mid-eighteenth century. The first two digits of the British Museum accession number indicate this particular plaque was received by them in 1899. The motif would suggest that CNH:4 should be placed within the main body of the plaque corpus. The Bini have a penchant for repeating themes and it is quite probable the relief is a copy of an earlier work. Willett (1973,17) mentioned the possibility of early type heads being copied at a later date. It is because of the alloy content and the probable copying that took place that this particular plaque is placed into Period II.

High-ranking personages, single figure compositions (HRPS) pp.68-74

In all fourteen illustrations the Binis are wearing the beaded high coral choker, and in figures HRPS:1-4 the udahae or beaded forehead band is also seen.

The band could be interpreted either as being commemorative of the death of Ezoti or the coronet which the Edaiken, Ezomo and Iyoba could wear (Egharevba 1971,98). Regardless of whether it is one or the other, it is a status indicator and appears to have come into general usage in connection with the ornate stone and coral beaded necklaces.

The Europeans are a common low-reliefed corner motif. These are usually bust compositions with the head in profile (HRPS:8,9) pp.69,72 and the torso in the full frontal view. In figure HRPS:4 p.71 the entire corner relief was modelled in the full frontal and it is one of the rare compositions where the entire plaque works as a thematic whole in the European or western sense. The stick held by the European leads the eye directly to the large central figure of the Bini and his vertical section of the pagne causes the eye to continue to traverse to the second corner relief. The thematic continuity is further helped by the greater height of the corner reliefs. This is reminiscent of the warrior chief with the winged cap (WRC:3) p.91. The broken right hand of the Bini personage indicates the arms were probably cast solid. Since height of relief and increased ornateness of dress has been considered as factors in the promorphic to neomorphic solution then HRPS:4 is taken as the probable final development in this sub-category.

There p.72 does seem to be a propensity to depict the Europeans drinking (fig.HRPS:9). Benin chiefs are never shown engaging in this activity.

Among the Bini the chief and head of the family usually eats alone. The Oba is never considered to require food and any illusion to him eating must be done metaphorically. Either the Europeans were addicted to palm wine or some similar libation or it is a rank indicator used by the Bini to denote the lower classification of the European.

HRPS:11 p.71 is a single figure rendition of the multi-figured composition CFS:6. The usual dress is the beaded cap or very stylized hair, bare chest, pagne plus neck and ankle jewellery. Occasionally one does observe the full length sleeved dress intaglioed with geometric designs (HRPS:5). The crescents and the corner relief of the European may well be a reference to the Iwoki guild concerned with celestial phenomena and according to tradition was founded by two Portuguese during the time of Esigie (Ben-Amos 1979, personal communication).

Alloy data are reported for HRPS:3 p.68 (Berlin III C 8258); HRPS:3a p.68a (BM:M.Reg.98.1-15.74); HRPS:5 p.69 (BM:M.Reg.98.1-15.17); HRPS:8 p.69 (BM:M.Reg. 98.1-15.15). The chemical ratios (Zn/Pb: 7.9,1.08,1.0,1.32; Sb/As: 1.71,3.71,1.2,4.57) are within the normal plaque range except for the Berlin relief. The high Zn/Pb ratio could be attributed to the specific gravity of lead. The HRPS:3a zinc and tin (Zn/4.9, Sn/4.3%) contents could be indicative of remelting having taken place of earlier cast pieces.

All the examples are Period I except for HRPS:4 p.71 which may be considered as early Period II.

Warriors

Hats were chosen as sub-division headings within this group because it appears to be the simplest and most direct method of differentiating between the numerous warrior compositions. The warrior classification is the largest within Category IV, as well as being larger than any of the other major categories.

Liturgical hat (WLH) pp.74-78

It somehow seems paradoxical to head a warrior section with an ecclesiastical vestment. The mitre is worn, in the Roman Catholic Church, by the Pope, Cardinals, Archbishops, Bishops and with special permission Abbots (Ferguson 1977,158). The Benin version is identical with the Catholic vestment and there is little or no doubt that it is a direct copy. The first mission arrived in Benin City in August 1515 (Ryder 1961,235). It is uncertain whether the Roman leader held the rank of Abbot but the honor could have been temporarily bestowed upon the leader (see Ryder 1961,234 for vestment items taken by the mission).

The series of illustrations which comprise this sub-section indicate a downward progression in the figure head to body ratio, from 7.5 to 5.0-4.5/1, plus a commensurate increase in height of relief and ornateness of dress and accoutrements.

The longest plaque in the entire wall series (WLH:1; 80 x 36 cm.) is found herein. It is a two piece flat relief (upper half in Berlin, III C 10879, and the lower in Hamburg, C 2434; also von Luschan 1919, Abb.265). There is another two sectioned relief of an armed European (EW:13a; von Luschan 1919,Abb.43; upper section in the BM:M.Reg.98.1-15.2 and the lower in Vienna, number 64718; 37 x 78.8 cms.). These two plaques appear to have been conceived and executed by the same hands. The background motifs are the same, both are flat rectangular compositions with a head to body ratio of 7.5/1. Additionally the feet are turned parallel to the base plane. The compositions are very remindful of the circled-cross 'Oba with arm supporters' relief (O:6; BM:M.Reg.98.1-15.34). Both of the two sectioned pieces have head to body ratios of 7.5 to 1 and the Oba with arm supporters 6.5 to 1. The alloy contents are so close that one suspects they were most probably cast at the same time or within a very close time period. The zinc, lead, tin, nickel, antimony and arsenic contents are: Berlin III C 10879: 11.0,10.2,0.7,0.42,1.1, 0.17; BM:M.Reg.98.1-15.2: 11.0,11.0,1.0,0.45,0.6,0.4; BM:M.Reg.98.1-15-34: 10.6,12.5,0.7,0.37,0.8,0.35. The major discrepancy is within the arsenic content between the British Museum and Berlin analyses. This could have been the result of different laboratories and techniques or because arsenic has a low sublimation point (400°C) (see Appendix 2). The close agreement between alloy content percentages and morphology of the three wall reliefs more than probably takes it out of coincidence.

Not only do the plaques in this series show a decreasing head to body ratio from 7.5 to the more usual African proportion of 4.5/1 but those within the European or Category I classification exhibit the same characteristic.

An examination of the reverse side of plaque WLH:1 reveals almost complete modelling of the central figure, corner relief and shield. This approach was abandoned after the initial castings and came full circle, where it is again observed on the very late work WBC:3. The use of thin section casting is indicative of an advanced technique and not something that one would expect from casters who are just learning the craft. It is suggestive of an outside probable European influence.

One of the most distinguishing characteristics of African sculpture is the large head, smaller torso and large feet. The overall head to body proportion is fairly constant throughout west Africa and hovers about 4.5/1. The 7.5/1 ratio is non-African and is what one would expect to find in European sculpture and painting of the sixteenth century. The use of the European system is either accidental or by design. The downward progression coupled with increasing relief and ornateness of dress would indicate that an argument based on accident or coincidence would not be very strong when compared to one which considers the probability of an outside influence. What one observes is that the early Benin or bronze period castings, used the African ratio. Subsequently there was an outside influence which could well have been the influence which taught the Binis the use of two dimensional wall relief sculptures. Finally, habit proved too strong and the proportions moved downward to the Bini aesthetic. To the present writer this would indicate that the possibility of Ahamman Giwa being a European may have much more merit than one would initially assume.

Two section casting because of size and surface area is unique within the wall plaque series and most probably this also applies to the full sculpture. If this was a Benin operation then, the present writer believes, they would have attempted a one piece casting and patched where necessary through the technique of burn-ins.

The central shield emblems vary from the oval with a small central lozenge shaped pattern (WLH:1), done in low relief to the intaglio oval with a central spiral pattern in relief (WLH:5). On all the shields the triangle predominates with the guilloche being the next most common. Whether the triangle was chosen because it is three sided and three is the symbol of threatening power or for some other reason is unknown to this writer.

The lower section of horizontal beads on the liturgical hat may well be a substitute for the udahae. The hair style of the musicians (WLH:5,7) is not as frequently seen as that worn by the eben holder (WLH:5), although it is seen throughout the plaques. It is reminiscent of that worn by Princess Edeleyo (von Luschan:1919,Taf.70), and several of the sockels which support the eighteenth century fully sculptured altar pieces (von Luschan,Taf.70;fig.PFS:1).

Most of the warriors are wearing a short sleeved under-garment that is cross-hatched with either stipple or circles between the hatch-lines. This pattern is known as agiengin (African hair) and does match what is worn by the above musicians. It is alleged to represent a sleeping mat (Dark 1973,73). It may well be that the warriors are

wearing a sort of armour, whether metal or quilted under their scapula.

Figure WLH:8 is a fragment but appears to be the mirror image of figure WLH:9, p.78

The alloy content of this series is very consistent with the usual plaque materials. WLH:4 (Berlin III C 8398), WLH:7 (BM:M.Reg.98.1-15.21) and WLH:8 (Berlin III C 10874) have Zn/Pb ratios of 1.51,0.72, 2.43 and Sb/As of 4.22,1.25,2.16 (Appendix 2).

Crocodile hat (WCH) pp.79-80

In the four examples (WCH:1-4) the head to body ratio decreases from a high of 7.0/1 (fig.WCH:1) to the normal proportion of 4.5/1 (WCH:4). This decrease is directly proportional to the increasing height of relief and ornateness of dress. WCH:4 is very consistent with the higher relief plaques in that the spear shaft has become quite ornate and the eben is being carried by a nude youth instead of the central figure. The convexity of the eye seems to diminish from WCH:1 through WCH;4. Also, the slight skewing of the right leg in WCH:1 tends to cause a feeling of torso movement or contraposto. There is no way of telling whether this was accidental or an artist's purposeful variant copied from the other early rectangular compositions such as the Category I sculptures.

The alloy content appears to be well within the range of plaque materials (WCH:2; Berlin III C 8373) with a Zn/Pb of 2.67 and Sb/As of 1.0 (Appendix 2).

D-shaped hat (WDH) pp.80-81

The long side plaits (figs.WDH:1-4) may have evolved from the plaits worn by the 12.4 cm. high 'Oni of Ife' full sculpture (Willett 1973, fig.1).

Von Luschan (1919,Abb.884,885) commented upon the corner relief of the European head being done in a grotesque manner (fig.WDH:3). Perhaps the smallness of the head with the large feather attached to the hat does add something to the oddity of the low relief. In fig.WDH:2 the two flanking warriors hold the spears in opposite hands and are mirror images of one another, while in fig.WDH:1 the horn players are duplicates and not mirror images. Also in this work the bells attached by long ribbons to the mid-riff are extended. One does not know whether this is a method of indicating movement or merely a device to show all the aspects of the central figure's dress. The spears and shields are less ornate and the shield is very remindful of the configuration used in WLH:2, p.76

Figure WDH:1 is the same plaque illustrated in Tafel 12, von Luschan 1919 except in the upper right hand corner the low-reliefed crocodile head is missing. The crack which ultimately caused the tearing appears to have been caused by uneven cooling between the base plane and the corner relief. The thinner section initially froze and pulled away from the more solid mass of the head.

WDH:4 is a bas-relief version of the fully sculptured warrior (EB:2; Berlin III C 9948). The plastique is a true bronze with a Zn/Pb of 2.09, Sn/Pb of 5.9 and Sb/As of 0.48 (Appendix 2). These ratios are close to those calculated for the 'Tsoede' bronzes (Shaw 1969,98; Appendix 2, Table 1), except the lead content of the Bini work is somewhat higher. Because of the problems with lead sampling, this may not be a significant variation. Morphologically EB:2 p.165 is consistent with Brass Period Benin casting. The alloy content does indicate that some of the Bronze Period pieces were remelted and used at a later date.

The alloy contents of this sub-group of plaques are again similar to the European brasses of the fifteenth and sixteenth century. The Zn/Pb and Sb/As ratios of WDH:1 p.81 (Berlin III C 8375) and WDH:2 p.80 (III C 8376) are 1.54,1.44 and 15.6,3.67. The very high Sb/As ratio of WDH:1 is due to the abnormally lw arsenic content of 0.03 percent.

High-crowned hat with front band (WHC) pp.82-89

Dapper's informant described the dress and weaponry of the seventeenth century Bini warrior.

> "The weapons of these people are shields, spears, bows, assegais, and poisoned arrows which the Feisteros, or devil hunters, know how to prepare very cunningly. The noblemen, whenever they must depart for war, clothe themselves entirely in scarlet, which they buy from the Dutch. Others have collars of elephants' teeth fitted below and tall red Turkish hats, ornamented with leopard or civet skin, from which hangs a horse's tail for decoration. Ordinary soldiers go naked from the waist up, but wear garments as fine as silk on the lower parts of their bodies." (Dapper 1668,495-505 (Hodgkin 1975,167))

The construction of the high crowned Bini hats were most probably similar to the methods used in the manufacture of the Yoruba beaded crowns. In the crown stiffened cotton or muslin is stretched over a wicker work frame, which is then dried in the sun (Thompson 1970,8). The reliefs are moulded over the lower portions of the frame with pieces moulded in wet starch. Then the top section of either hair or skin is sewn to the underneath cotton or attached directly to the wicker work. Examination by the present writer of a cone-shaped hat belonging to an Uzama in Benin showed that the outside covering was tied directly to the inner wicker.

In sixteen of the seventeen examples (WHC:1-17, pp.82-84 except number 16) either one or two tails are attached to the rear upper portion of the crown. Also, in these examples the upper portion of the crown does appear to utilize hair, except for WHC:13. p.88 Here the hair has been replaced by the skin of the crocodile. WHC:9 was placed into this sub-group because of the general shape of the headgear. In most examples the hat is equipped with either one or two feathers and a chin strap.

The local weaponry of swords, knives, spears, clubs and bows and arrows does not seem to vary from the neighboring Yoruba and are well suited for forest style warfare. The bow (WHC:4,10,14,15 pp.83,86,87,88) is the small variety and contra to hunter's weapon uses one bent stave with the string permanently fastened. Smith described the Yoruba bow as some four or five feet in length with a force of approximately forty pounds at full draw, sufficient to kill an elephant at close range (Smith 1967,96). Arrows are not seen on any of th warrior plaques in this series and this does reinforce the idea of the poisoned variety being used. They must have been rather small and light if they would fit into the flattened quiver illustrated in the waistband of the warrior in figure WHC:4.

The swords are very similar to the Yoruba ida, which is a double edged weapon designed for slashing and cutting rather than thrusting. Both the Benin and Yoruba versions are most probably based on either Islamic or European models of the fifteenth and sixteenth century. There were iron workers in Benin, and in most cases these weapons were probably of local manufacture.

In this series the shield has become standardized; pyramidal in overall configuration with a wide circumferential border of geometric shapes and a central motif of entwined snakes or mudfish in low relief and surrounded by a field of incised stippling.

The small upper relief (fig.WHC:1, Berlin III C 8054) of the warrior was roughly modelled on the core while the horn blower in the opposite corner was apparently cast solid (fig. WHC:1a). The absence of core modelling may be indicative of a later addition, occurring in the wax stage. Perhaps the artisan realized the need for bilateral symmetry. The warrior chief's dress, including cap, is matched very closely on the plaque of the two chiefs with spears and shields (WHC:6,6a; p.84 BM:M.Reg. 98.1-15.83). Though morphologically similar the alloy contents are quite different. The Berlin relief has a rather high zinc content (15-20%) and low lead (1.7-2.3) and the British Museum work has the opposite, low zinc (2.8%) and higher lead (9.4%). The antimony and arsenic levels are also quite different (Berlin III C 8374) is 1.89 with an Sb/As of

6.67, and that of WHC:16 (Berlin III C 8391) is 1.84 and 3.4.

Figure WHC:6a illustrates the method of casting high relief. The spear has six runners while the shield has four on each of the figures. The actual number is probably based on experience and the greater number of runners will help ensure success in casting long thin large surface area sections.

The full frontal poses and high reliefs seen on WHC:1 and 6 plus the ornateness of dress would tend to indicate a later development. The two plaques are either late Period I or transition works into Period II.

Plaque WHC:17 is a flat reliefed composition of a single Bini bowman, and six rosettes along the circumference of the larger size rectangular plaque. This or a very similar type figure is also seen on the 'War or Battle' reliefs (WS) and probably can be dated as contemporary of those multi-figured pieces. Chemical data do not exist and unfortunately this comparison cannot be made.

Beaded cap (WBC)

WBC:1,2 and 3 (Berlin III C 8208; 7657) have been mentioned in connection with the Dark type 4, Oba memorial heads.

In all the large group compositions, within this sub-category, the central warrior chief is bare chested and wearing a wide banded baldric, and hip mask of either a leopard or human head. The shield holders are wearing D-shaped hats adorned either with cowrie shells and in one case leaves (fig.WBC:6), and sporting beards. It is a stock composition with some minor variations, such as the number of musicians in the entourage.

Plaque WBC:6 appears to have been modelled by more than one pair of hands. The central figure is correlative to what is normally seen but the flanking warriors and smaller nudes are mere stick figures. The faces of these warriors are almost completely flat. The hip mask of the chief is a miniature of the ornamental mask often seen in Benin art (Dark 1962,pl.239; ht. of mask is 19.1 cm.). On his pagne the European with a long flowing moustache has been incised. This is rather a rare clothing motif. The beaded cap is the 'X' or criss-crossed pattern with a coral cluster. This is the same cap seen on the type 4 heads except on the heads there is a greater number of beads and clusters. The facial planar angles and the sharpness of the bridge of the nose of the chief (WBC:6) is the same as the altar pieces (von Luschan 1919,Taf. 79,80,81). For these reasons WBC:6 is also considered as most probably a Period II casting, along with WBC:1-3.

This writer is of the opinion that plaque WBC:7 (p.96) is most probably a 19th century composite of more than one of the other reliefs in this group. This particular work is some 39.4 cms. wide and 37.5 cms. high. A plaque in which the width is greater than the height is extremely rare. Dimensionally it seems to fall between the two general sizes. All of the other sculptures in this sub-category are high reliefs, especially the weapons. On WBC:7 all these items are in very flat relief and the spears are modelled so that one is behind the kola box holder fall directly over the shield. For some inexplicable reason the shields are turned horizontally and the central emblem of entwined mudfish or snakes are incised. Such flat relief is not correlative to the high coral choker and beaded cap worn by the warrior chief.

The central figure's cap does not have vertical columns indicated by a bead having been turned ninety degrees so that it now spans two rows. Here one sees smaller beads alternating between the larger size. The leopard's teeth collar is smaller, especially the flange which supports the teeth. The hip mask worn by the central figure is out of proportion to the size normally seen and such a totem is usually never worn by a slave or attendant. The body cuts of the horn blower are extremely rare (WRH:1) (p.118). The patellas of the small partially clothed nudes are not in keeping with Bini modelling. In addition the hair style of the kola box holder with a small top knot and the warrior chief with flapping side plaits are again not depicted on Benin art. Also, for some reason, the genitalia of the nudes have been neatly excised and replaced by rectangular shaped holes.

WBC:7 (p.96) is dated by the owners, the William Rockhill Nelson Gallery of Art, Kansas City, Missouri, as sixteenth to seventeenth century. That Museum either owns a unique Benin wall plaque, or as this writer firmly believes, a 19th century copy.

The two warriors seen on plaque WBC:14 (p.98) are wearing the beaded dress, the arch motif variant of the beaded cap, and the narrow crossed chest baldric. The sword is a combination of the eben and the more common longer two-edged slashing weapon. The figure on the left is wearing a wider chest baldric and a bead attached to the lower front edge of his cap. The caps are somewhat different with the left sided figure having a bent-over pyramid-shaped object attached to the top. This is occasionally seen. Positive identification cannot be made but the dress and accoutrements would indicate very high ranking Bini personages perhaps the Ezomo and Iyase.

The very rare full facial portrait of a European appears in figure WBC:13 p.97 in three of the corners as ancillary motifs.

Only three sets of analyses are listed: WBC:2 (Berlin III C 8208) with a Zn/Pb of 1.91 and Sb/As of 1.33; WBC:3 (Berlin III C 7657) with a Zn/Pb of 6.8 and Sb/As of 2.14; WBC:9 p.95 (BM:M.Reg.98.1-15.22) with a Zn/Pb of 1.84 and Sb/As of 0.67. WBC:3 is the warrior chief with the winged cap.

Conical hat (WCS) pp.100-167

The plaques in this sub-category are fairly well divided between the warrior chiefs wearing the pagne and the full length feathered or leaved dress (WCH:9-14) pp. 101-106. A similar feathered dress is still in use today (Talbot 1926,vol.III,figs.122,138,146). This is a ceremonial dress (Ikpapegwi or Eha-gbe-hia) of both the Oba and his personal attendants and said to date back, in its present form, to before the Portuguese (Talbot 1926,vol.III,586).

The warriors (fig.WCS:10) p.103 have on a modified feathered dress cut along the bottom in the style of a pagne. On their hips they are wearing a small ornamental mask in the form of a face adorned with crotals. The mask may have developed from the one being worn by the Oba (fig.O:5) p.53 and the crotals being taken from O:10. p.55 Down the front of the dress, in the area of the chest, one observes the python and on the left figure the snakes are entwined in the form of a guilloche.

The major figures (WCS:16,17) p.105, 106 are wearing a raffia or some other type of straw hat. One of the easiest methods of manufacturing the other types of high crowned hats would be to use something like these straw versions as the underneath or base to which the cloth or skin and the other accoutrements are attached. The high crowned hat was common in both Spain and Germany during the mid-fifteenth and sixteenth centuries (Amplett 1974,figs.235,290).

The diagonal scarifications are so neat and regular and appear very similar to marks that one sees after attempting to drill holes in close proximity to one another. This writer is not convinced these were placed on the figures by the Bini. He is more inclined to believe this was purposeful destruction done after the plaque left Benin.

The plaque (WCS:15) p.104 is a somewhat unique composition. The scapular worn by both the figures is not in the form of a leopard but a series of plaited bands, much like sewn mat material. The small bells are attached directly to the dress and not hung from plaited or ornate string bands. The left sided figure is wearing a skull hip mask of the same variety as that seen on the relief SK:1. p.49a. The other is wearing a

mask in the form of a head with snakes emanating from its nostrils and possibly birds atop the skull. Thermoluminescence dating of the 'Daemonic Man' (BM:M.Reg.1948.AF.9.1; Foreman and Dark 1960,pls.79,80) is A.D. 1682±35. The Zn/Pb is 0.96 and the Sb/As = 0.6. Since the full sculpture is of the same subject matter as the hip mask the date could be taken as indicative as the period when the plaque was cast. Certain facets of the two dimensional work such as the sword pommel, feather attached to the cap and the small bells adorning the dress are all done as sculpture in the round. This would point to a later portion of Period I.

These hats are reminiscent of European style headgear of the late sixteenth century (Lipperheide 1896,Band I.Abb.1397).

All the chemical data in this sub-group is taken from the plaques in the Museum fur Volkerkunde Berlin: WES:4 (III C 8392) Zn/Pb of 1.71 and Sb/As of 1.13; WES:8 (III C 8261) Zn/Pb of 5.65 and Sb/As of 1.83; WES:16 (III C 8055) Zn/Pb of 8.26 and Sb/As of 1.11 (Appendix 2).

Coimbra hat (WCO)

This sub-group (figs.WCO:1-8) has been given the appellation 'Coimbra' because of the similarity to the Doctor of Theology hat of the University of Coimbra (von Luschan 1919,144).

WCO:1 (BM:M.Reg.98.1-15.36) has the rarer circled-cross intaglio motif. The head to body ratio of the larger figure is approximately 7.5 to 1 and the smaller 5.0 to 1. The chemical alloy content (Appendix 2) matches the findings from , WLH:1 and EW:13a The shape of the face, modelling of the torso, ankle and wrist jewellery as well as the placement of the feet are the same as what is observed on O:6. This relief (WCO:1) is one of the few Bini works on which the neck is completely shown. The usual configuration is the high choker which completely hides the neck or else to minimize or eliminate this portion of the body, as has been done on the small figure holding the double bells.

The angled cone shaped fragment in the lower right quadrant (WCO:1), perhaps the remains of the side blown horn, was a later addition welded to the basal plane surface. Also, the eben is being worn or held on the left side and in the right hand a club covered with plaited material is being held. Both are rare depictions.

On WCO:5 the central warrior chief is holding the fly whisk. The whisk is similar to the chauris of India and were commonly made of horse tails exported to west Africa from the sixteenth century. They were carried as symbols of rank and Read and Dalton (1899,pl.VIII,fig.1) illustrate one that was supposed to have been carried by a nude attendant

who walked in front of the Oba during processionals (Read and Dalton, 26). One of the flanking musicians is holding what appears to be bells. One cannot tell whether the ends have been broken off or this was the method used to depict the instrument. p. 108

The full leopard hip mask (fig.WCO:3) is worn and the tattooed nude attendant is carrying the fruit of the Telfairia vine.

The plaques in this sub-group are illustrative of the constancy of relationships between particular motifs. The earliest plaque (WCO:1) is a representation of a warrior chief wearing the 'Coimbra' hat and wearing a leafed and crescent patterned pagne. The same relationship of style of hat and pagne carries through the entire series with one exception (fig.WCO:5). This sort of repetition is generally carried through the entire corpus of the wall-reliefs. p. 108

The Zn/Pb and Sb/As ratios of WCO:1 and WCO:4 (Berlin III C 8390) are: 0.9,1.83 and 5.5,3.63.

Pot hat (WPH) pp. 110 - 117

It cannot be said with any certainty whether this hat is of either metal or cloth construction. Considering the Bini propensity for colorful headgear and the plainness of what is depicted (WPH:1-14) the present writer believes it was most probably metal. If metal the hat is a version of either the Iberian 'kettle' or English 'pikeman'. The usual warrior markings are the leopard's teeth collar and the quadrangular bell. On several of the plaques, in this sub-category, one or both of these items are missing (WPH: pp. 110 - 115 1,3,9,10,13,14). These particular compositions were placed herein because the central or supporting figures are carrying swords. On plaque WPH:13 p. 115 the warrior is carrying a bow and his dress is adorned with stripping and bells. This work is very similar to plaque WPH:11. p. 114 It is quite possible these particular compositions do not represent warriors and after subsequent study they will have to be placed into another category.

One composition is of a warrior wearing what appears to be stilts (fig.WPH:1) p. 110 either strapped to his knees or feet (Read and Dalton 1899, 53). His hat is either cloth or metal and has an adjustable chin strap. One would not think the Bini employed warriors wearing such devices for any purpose. It could be symbolic of the invincibility of the Benin fighter who towered over his enemies.

A possible alternative explanation concerns the fabled Aruanran, the giant, brother of Esigie.

Aruanran was born in the morning and Esigie in the evening of the same day. Esigie was the first to cry out and Ozolua, their father, vested him with the royal rights of succession. Aruanran only cried after he was struck on the head with a kernel and he was also vested with the same rights. The brothers contested for the throne and after Esigie became Oba and Aruanran chief of Odo they still continued battling one another. There are several traditions which recount amazing feats of the giant (Jungwirth 1968,159-181; Egharevba 1968,26).

Chemical alloy data do not exist for any of the reliefs in this sub-group.

Rectangular hat (WRH) p.118

On all three examples the warrior chief is wearing either the one or two piece feathered dress (figs.WRH:1-3).

The use of feathers by a war chief or chieftan-priest is particularly appropriate, especially if the feathers are from one of the night birds such as the grey heron, senegal or coucal. All of these birds have sharp beaks and are considered warriors. The snakes undulating down the front (WRH:1,3; WC5:10 p.103) are either the python, who is the messenger of Olokun or a poisonous variety such as the aka ovbivbie or iviekpo. These are two of the most dangerous reptiles and are messengers of the night people and Osun, the god of medicine (Ben-Amos 1976,250).

The Zn/Pb and Sb/As ratios of WRH:1 (BM:M.Reg.1903.10-22.6) and WRH:2 (Berlin III C 8209) are: 1.29,1.54 and 2,2.25 (Appendix 2).

'Stylized' hairdress (WSH) pp.119-128

The variety of hairstyles seen in west Africa is positively bewildering. Burton (1863,280) mentioned that a very common style was to have the hair cut in horizontal overlapping layers to which long braids are attached made from either thread or horsehair (figs.WSH:3,8, 9 pp.119, 125). Dapper (Hodgkin 1975,162) and Van Nyendael (Hodgkin,195) commented on Bini hair styles and Van Nyendael's remarks appear to be more inclusive.

After marriage the men were no longer required to shave their heads. The reference to shaving heads probably referred to a partial removal of hair and not to the male having to remain bald (fig. Appendix 1 p.124). (See Marquart 1913,Abb.1 for a reproduction of Benin hair styles).

Several of the figures are wearing the ikao or forehead circatrices (figs.WSH:1,2,8, Appendix pp.120, 125, figs.1-5 pp.121, 123). On plaque WSH:13 p.127 both figures are wearing the circatrices with a reliefed disk between these markings. The disk is the major motif on several reliefs assigned to the category of inanimate objects (IO:1 p.17) and it appears in the center of the top surface of the Esigie/Eresoyne stool (fig.SEE:7 p.175). The disk is representative of the sun and may be one of the icons of the Iwoki guild.

The weaponry is standard with the two-edged sword, crossbow, arrows or spears, knives and clubs being illustrated. The knives or short swords are probably of local manufacture and seem to be modelled on European or Islamic models (Arts Council 1976,164) of the sixteenth century. The chest baldric with either attached tassels or bells (figs. WSH:5 p.124, Appendix , figs.1-5) look very similar to Dutch bandoliers.

All of the waisted bells are of the same configuration varying somewhat in size and ornateness. The large bell worn by the figure on plaque figures WSH:2,8 pp.120, 125 are very close to the Cameroon bronze bell (Neaher 1979,47).

Seventeen examples are in this group and chemical data are available for three reliefs; eighteen percent of the total. The Zn/Pb and Sb/As ratios of WSH:2 (Berlin III C 8385), WSH:8 (BM:M.Reg.98.1-15. 111) and WSH:11 p.126 (Berlin III C 8277) are: 1.57,2.23 and 2.5. The comparable Sb/As ratios are 4.76,1.5 and 1.67.

Royal hunters (RH) pp.129-131.

The enigmatic hats worn by the royal hunters (figs.RH:2-5 pp.130-131) have never been adequately explained. Von Luschan mentioned (1919,242) how he had inquired for some twenty years about the materials used to cover the hats. He never received a satisfactory answer and finally concluded that perhaps the projections were the fruit of the Physostigma. Read and Dalton (1899,47) evaded the whole question and simply called the whole item hoods or hats with heavy chin straps covered with projecting tabs. Hagen (1900,17) describing the plaque in the Hamburg collection (RH:4) called them hats covered with a thick shag. Positive identification still cannot be made. As to usage, the consensus of opinion is that they were primarily for camouflage and secondarily status indicators. At one time guilds existed to hunt and capture leopards and vulturine fish-eagles (fig.RH:1 p.129) so they could be brought back alive and kept in captivity (Ben-Amos 1976,247).

The hunting bows are very small, some twenty-eight to thirty-four inches long and of the composite type. They are thought to be similar to the Dahomean weapon which used iron rings to help absorb the strain. The usual arrows were light and very slender, feathered with dried leaves. They resembled those used by the pygmy and other tribes of central Africa. The size of the arrows in the illustrations are completely out of proportion to the bow and the game which have been shot (RH:2). p.130 The present writer tends to believe the size of the arrows are only symbolic of the power contained within the weapon and the hunter. Flat rectangular quivers are observed (RH:2,3 and 5) which are unlike the usual African form. On the left wrist or forearm the figures are wearing a bracer or wrist guard, similar to that worn by the Wute in the eastern hinterland of Togo (Read and Dalton 1899,25).

A twentieth century wall plaque is currently in the Benin Museum of Akenzua II (1933-1978) sacrificing an elephant. The Oba had special elephant hunters who carried poisoned guns and it was forbidden for anyone to touch their weapon which was protected by charms and medicine. The Oba had the right to one tusk and could purchase the other at an agreed price. A village hunter was bound to send the hand of any animal he killed to the Enogie or area chief. The chief gods of the hunter are Ogun (war) and Osun (medicine) (Egharevba 1971,44).

'Amufi' (A) p.131

During the yearly Isiokuo festival honoring Ogun, which is usually held in December, men known as Amufi were suspended by ropes from the okha tree (fig.A:1) and performed acrobatics. The display ended when they fought Osogoan, the great sky monster (Egharevba 1971,88).

'Iwaranmwen' (IN) p.133

The royal ceremonial butchers known as Iwaranmwen were a branch of the house of Ibiwe, headed by a chief called the Ehondo. They were charged with cutting up the sacrificial animals and ensuring proper distribution according to rank, e.g. at the Ugigun festival the breast and hide went to the Iyase, the blood to the Oza, the neck and fowls to the Ihama of Ihogbe, etc. (Egharevba 1971,95-96). Human sacrifices were a usual part of such festivities but cannabalism appeared to be generally frowned upon (Ebohon 1972,46), though there is mention of the two ferocious cannibals Osa and Osuan.

The two examples (figs.IN:1,2) are very similar with the major differences being in the number of reliefs and a European with crossbow is seen as a low corner relief on IN:2.

IN:1 (BM:M.Reg.1913.12.11.1) was sampled twice, from the main casting and cast-on. The lead content from the cast on sample is some 2.5 times greater than from the main casting. The tin content of both samples is approximately the same as the zinc (Appendix 2). The matching zinc and tin percentages could indicate the plaque may have been manufactured from remelted materials.

Factors (FA) p.132

Portuguese influence in the Biafran coastal areas stemmed from the trading entrepot at São Thomé. The island was discovered by de Sequeira in 1473 and the crown granted the first captaincy in 1485. In the same year John II authorized the island to trade directly with the mainland, thereby recognizing what already had been a 'fait accompli'. The Captaincy was regranted in 1493 to Alvaro de Caminha, a member of the royal household. He arranged for a number of young Jews, convicts and exiles to be sent to the island in an attempt to build up the white settlement and promote intercourse with the Bini king (Blake 1942,58). The policy was successful and when D'Aveiro returned to Portugal in 1486 the Oba sent the priest-chief at Ughoton (aka Gat or Gwato) along as the Bini ambassador. The choice of the Ughoton personage may be attributable to the importance of the village as the Benin 'port' and the one most vitally concerned with the opening of European trade (Ryder 1969,30). The Oba evinced a keen interest in trade, in slaves and other products. Of particular interest to the Portuguese were the samples of the 'tailed pepper' (Piper guineense) brought from Benin. A trial of this spice through the Antwerp factory proved it was an admirable substitute for the Indian pepper. When the Bini returned in 1487 factors came along and opened the factory at Ughoton. The climate was unhealthy for the Europeans and because of the heavy casualty rate and unprofitable trade this commerce was abandoned (trans. of de Pina, ca. 1500, ch.24 in Blake 1942,78-79).

The account of the Ughoton factory is very briefly sketched in de Pina but Barros (1552, bk.3,ch.3, in Blake 1942,58) gives a somewhat fuller account. He wrote:

> "... the king ordered the building of a factory in a port of Beny, called Gato (Gwato) whither there were brought for sale a great number of those slaves, who were bartered very profitably at Mina, for the merchants of gold gave twice the value obtainable for them in the Kingdom."

The slave trade existed between Benin and Mina without interruption until the reign of John III (1521-1557). The usual route taken by the caravels was from Portugal direct to the African coast and then to Benin (Ughoton) and on to Mina. Sao Thome grew into a staging area where slaves collected at Benin were joined by human cargo from the Congo, to be transported to Mina (Blake 1942,59).

The actual trade was carried on by chartered contractors who enjoyed a monopoly for a set period. The Rio dos Escravos was rented by the Florentine banker Bartholomew Marchione (1486-1488) and the Rio Primeiro was rented in 1502 by another. The purchases of slaves were arranged by the factor at Benin who also transacted other business for the Sao Thome islanders. Business must have increased when the slaves started being shipped from Ughoton to the island. This permitted a steady flow of individuals and removed the heavy dependency of awaiting the periodic visits of the larger draught ocean going ships.

Duarte Pires (in Kimble 1937,125-126) has described the port in the early years of the sixteenth century:

> "A league up this river on the left two tributaries enter the main stream: if you ascend the second of these for twelve leagues you find a town called Huguatoo, of some 2,000 inhabitants; this is the harbor of the great city of Beny, which lies nine leagues in the interior with a good road (betwee them). Small ships of fifty tons can go as far as Huguatoo. This city is about a league long from gate to gate; it has no wall but is surrounded by a large moat, very wide and deep, which suffices for its defence. I was there four times. Its houses are made from mud-walls covered with palm leaves." (Pires 1508; trans. by Kimble 1937, 125-126)

It is not clear when Ughoton was abandoned as a Portuguese entrepot as there is evidence it was populated by factors, some of them mulattoes, up to about 1520 (Blake 1942,61). Ryder seems to believe the factor was withdrawn shortly before 1510 (1969,39). Probably Ughoton was never fully abandoned since it was the primary outlet for Bini trade with the Europeans and the delta tribes. In the sixteenth century a shift in patterns did occur, with complete economic control being vested in Benin City and the absence of a European factor. In the first two decades of the seventeenth century another change occurred with European trade moving again to Ughoton and Arbo which was directly on the Benin river (Ryder 1969,88).

Van Nyendael has left an account of Benin trade patterns with the Dutch in the last years of the seventeenth century:

> "They are very prompt in Business, and will not suffer any of their ancient customs to be abolish'd; in which, if we comply with them, they are very easy to deal with, and will not be wanting in anything on their Part requisite to a good Agreement. But what is worst of all is that they are very tedious in dealing. Many Times they have a Stock of Elephant's teeth by them, which we are generally eight or ten days before we can agree with them for; but this is managed with so many ceremonious Civilities that it is impossible to be angry with them." (extract of a letter found in Bosman 1705,423-468; taken from Hodgkin 1975,198).

Nyendael also mentions the necessity of 'trust' transactions especially in the trading of cloths. Oftentimes the ships were required to delay in order to await payment. This caused increased hardship through increased mortality and diminution of provisions. He apparently did not have a high opinion of the fiadors and thought their only attribute was an ability to speak a miserable sort of Portuguese which allowed for communication. The greatest complaint throughout the entire period of Dutch trading was the problem of credit transactions (Hodgkin 1975,198).

All of the plaques illustrated in this sub-group are definitely connected to trading and Ughoton (figs.FA:1-4). The serpent, crocodile and fish are symbolic of Olokun and the manillas being held (figs.FA:1,4) also tie the compositions to Ughoton.

In all of the photos the thumbs of the hands are extended. The curious configuration of the left hand of the central figure (FA:4) with the hole running underneath the bent fingers could indicate a missing manilla. The plaques were not closely investigated as to possible subsequent cast-ons. However, a perusal of the British Museum data (Appendix 2) does tend to indicate that such a technique was used.

Plaque FA:4 (BM:M.Reg.98.1-15.77) has a Zn/Pb ratio of 7.9 and Sb/As of 0.25 (Appendix 2).

Palace associations (PA) pp.134-149

The administration of the palace was divided between three associations (otu-eguae) in order of seniority: Iwebo, Iweguae and Ibiwe. The Iwebo were in charge of the Oba's wardrobe and state regalia and were also responsible for repairing and making the beaded dresses and accessories. Iweguae supplied the personal and domestic servants and Ibiwe had the responsibility of the Oba's wives and children (Bradbury 1970,37).

Each of the otu's had two senior grades with individual titles and three untitled grades. It was a hieratic system in which members generally worked their way up, with some notable exceptions. The Oba had the right to confer rank on an individual currently in favor, though he was not a member of any of the associations. The leaders of the otu-eguae are the Eghaevo n'Ogbe, and within each otu titles rank according to their antiquity. The Oba also had the right to create a new title and advance it within the hierarchy provided he did not disturb the first two titles within the otu (Bradbury 1970,38).

Nudes

In the 1640s no man at court was allowed to clothe himself until he was clothed by the king and until then he also could not let his hair grow (Dapper 1668, from Hodgkin 1975,162). There were men up to twenty-five years of age who went about naked and wore only necklaces of coral or jasper beads (Hodgkin,162).

The nudes were placed in this sub-category (PA) because the plaques were made for the Oba and the figures are adorned with neck and ankle jewellery, forehead circatrices and body tattooing. It does not seem probable that such compositions would represent a group not intimately connected with the Oba through one of the palace associations. All of the examples are not adorned with all the aforementioned attributes (figs.PA:1-8). pp.134-137 Probably each of the associations had particular emblems or body markings. All of the figures do have the forehead circatrices and the usual Bini body scarifications. Von Luschan described the tattooed figures as foreign born (1919,Tafel 42).

Figure PA:6 pp.135-136 has been examined in the British Museum (Fagg 1958,154) and it was concluded the relief was originally cast without male genitals (see fig.Appendix 1 p.121 for a cast repair; WBC:7 p.96 where the genitals have been excised and WHC:4 p.83). There is no prohibition against females being represented and they are commonly seen on altar or shrine works (Wolf 1970,201-205,ill.1-20; Tunis 1978,57-89).

Dapper (Hodgkin 1975,169) remarked that the Oba's wives were locked in a cloister and guarded by eunuchs. Ben-Amos (1979, personal communication) does not agree PA:6 represents a eunuch because she is of the opinion that it is not exactly what is removed. Whether it is a harem guard or someone else she does agree that the plaque does not depict a female. The body markings are very similar to those observed on plaques PA:7 and 8.

Chemical alloy data for PA:8 p.137 (Berlin III C 8755) indicate a Zn/Pb ratio of 2.92 and Sb/As of 1.44.

Clothed personages

Many of these identifications are doubtful, e.g. PA:10,19,20 and 37 and they have been placed in this sub-group for want of further information as to where they should be assigned.

The ukhurhe or rattling staff is a carved wooden rod with at least two slits near the top, opening into a hollow containing a small piece of wood. The staff is usually found at the rear of altars, and is representative of the transfer of authority to a successor. The Oba's ukhurhe has the additional meaning of a transfer of authority over the whole nation transmitted through his father from all previous kings. On his accession the new Oba sends a staff to the royal shrine at Ihimwinrin, located a short distance from the city and believed to have been founded by the son of Eweka I (Dark 1973,26).

The central figure (PA:38) is holding the ukhurhe in his left and the right hand is atop a shallow bowl.

Front and rear views are presented of plaque PA:30 because it is an unusual composition, in that the two kneeling isocephalic figures are turned toward one another with the left figure pouring or about to pour a libation into the shallow bowl held by his facing companion. It is a rare composition and possibly should be considered as the Bini counterpart to the European plaque figures facing each other and seemingly engrossed in conversation (von Luschan 1919,Taf.6c).

An examination of the reverse side (fig.PA:30a) shows that the two figures were modelled on the core as cylindrical shapes and the appendages as well as the accoutrements of dress and utensils were only done in wax, and cast solid. Throughout the entire plaque corpus the arms were always weakly modelled and never are an integral portion of the trunk. One can almost always tell that these appendages are simply stuck on at a later period in the modelling process. Perhaps this is a carry over from ivory and wood relief carving where the artisan is forced to work with a very limited volume.

The chemical alloy contents are correlative to what is expected and fall within the range of fifteenth and sixteenth century European materials. The only possible exception is PA:12, the single figure holding the antelope shaped kola box. Here (BM:M.Reg.98.1-15.143) the Zn/Pb ratios are 10.2 and 9.3 and the Sb/As are 1.33 and 0.83. The high zinc contents of the two samples taken from this casting, 21.50 and 21.0 percent, and the low lead, 2.1 and 2.3 percent may be indicative of a possible late seventeenth or early eighteenth century casting date.

Morphologically the plaque is Period I. The other reliefs: PA:11 p.138 (Berlin III C 8411), PA:22 p.142 (Berlin III C 8382), PA:23 p.142 (Berlin III C 20830) and PA:30 p.147 (Berlin III C 8211) have the more usual Zn/Pb and Sb/As ratios and this data will be found in Appendix 5.

Royal musicians (RM) pp.150-161.

Bini musical instruments are those commonly found in west and central Africa. Dark and Hill (1971,65-78) examined 895 wall plaques and found seventeen different variations of drums, rattles, lutes and horns on 295 reliefs. They classified the instruments under the Hornbostel and Sachs (1914,553-590) scheme. Included in the Dark and Hill paper were some twenty illustrations.

Musicians are seen throughout the wall reliefs either as primary subject matter or in support of warrior chiefs and others. The only illustrations that are attached to this section are those on which the primary composition or theme concerns musicians. Identification is doubtful as to the small spherical shapes being held in figs.RM:25,26 pp.161,160 and 27. p.161 Von Luschan identified them as rattles (1919,Abb.360-363) and Dark and Hill also call them calabash rattles (1971,75; fig.RM:15). p.157 However, Dr. Richard Campbell of the ethnomusicology section of the Museum für Völkerkunde Berlin believes they are not musical instruments but a kind of offering or offering vessel

The wide distribution of the instruments (Ankermann 1901,1-134; Mackay 1950,112-133; Nadel 1973,301-304; Krieger 1968,373-430), their relative antiquity and the paucity of information as to how and when they appeared in Benin prohibits their use as any sort of chronological aid. The only possible exception is the quadrangular bell (Vansina 1969,187-197).

The most important instrument throughout west Africa is the drum, which is seen in many different sizes and shapes.

The slit-drum (idiophone) is seen on only one wall relief (fig. RM:1). p.150 These were constructed from a hollowed out log with a narrow slit in the center and broader connecting ones to each side. Different tones are produced depending upon where the idiophone is struck. Those on the side of the wide slit are usually higher by about a quarter (Talbot 1926,vol.III,809). A skilled drummer is able to extract differences in tone, accent or stress, and frequency. A sort of symbolic vocabulary can be built up from the sounds. These are different for each tribe (Talbot 1926,809). There is not a distinct combination of sound for a vowel or consonant and the overall effect could be

likened to a musical glyph language where the sound transmits the picture or idea. This is joined by another musical glyph and another until the entire sentence or story has been told. Talbot (1926,810) believes it is rare to be able to express more than two ideas in a single set, though the third would be understood. Where this language is developed every person of importance has a drum name. The name is not expressed by a particular combination of sounds which emulates the real name but rather by sounds which convey a sentence or series of phrases about the individual.

The slit-drum is not commonly used by the Bini and is more commonly found east of the Niger (Talbot 1926,vol.III,810) or in the Delta and Cross-River areas (Foreman and Dark 1960,38).

The craftsman has created a definite feeling (fig.RM:1 P.150) of perspective by placing the cross-legged seated figure between the drums. The Olokun imagery on the left of the drummer's head appears to be a later cast-on. The ship's hawser which supports the drums, the fish and the mortars or petardes may be taken as a direct reference to Ughoton or Gwatto the Benin port area. Perhaps this was the method used for communicating with the capital.

John Picton, of the Museum of Mankind, London recently advised that he did not believe firearms were represented on the relief. He thinks that the upper right low reliefed items are yams and probably the drummer's dinner.

The only other instrument briefly discussed herein is the chordophone or bow-lute (pluriac) (fig.RM:6 P.151). It is a common west African instrument usually found to the east of the Ivory Coast and in the Congo (Ankermann 1901,19-24; Dark and Hill 1971,fig.18). The closest description of the Bini stringed instrument may be that by Basden concerning the Ibo '<u>ubaw-akwala</u>' (1921,189-190).

The Ibo lute has a triangular shaped body made from sewing three pieces of soft wood together with fibre. Four to eight canes of varying length are tied to the underside of the resonator, and extend beyond its head, terminating in an upward bend. The strings are tied to the bend, cross over the bridge and are fastened to the tail piece. Tuning is accomplished by bending the canes and passing strings around the respective ends until the proper tension is achieved. These are made from fibre taken from the base of the palm and rubbed down to the required thickness. The instrument is held in front of the player with each thumb lightly working an equal number of strings. Basden described the sound as sweet and not unlike the light stoccato notes of the violin.

It is considered the favorite instrument of the Ibos for accompanying songs and chants and was particularly favored by strolling singers at night.

On the plaque (fig.RM:6) the lute is also held in front and played with the thumbs. The player is dressed as a warrior (see figs.RM:2,4 and 5). Music was probably an integral part of any army. One can only speculate as to the function of the warrior lute player. Perhaps he was a griot who went along to gain first hand knowledge for later recounting.

The warrior with bow on plaque RM:5 is wearing a cap similar to the 'Jebba Bowman' (Fagg 1963,pl.57) and fully sculptured warrior with bow and sword (fig.EB:2).

Chemical alloy data exist for nine plaques: RM:1 (BM:M.Reg.1961 Af. 18.1); RM:7 (Berlin III C 8214); RM:10 (Berlin III C 8207); RM:11 (Berlin III C 8401); RM:18 (Berlin III C 8440); RM:19 (Berlin III C 8387); RM:20 (Berlin III C 27506); RM:22 (Berlin III C 27507); RM:23 (Berlin III C 8275). The Zn/Pb ratios are very close and only vary from 2.05-1.28, but the Sb/As ratios have a wider pattern varying from 6.00-1.0. The tin and nickel contents are also rather closely ranged: tin varies from 0.3-2.7 percent and nickel from 0.10 to 0.22 percent. Though the Zn/Pb ratios are close to one another the percentage of each element varies from a zinc high of 14.30 to a low of 2.7 percent and the lead from a high of 8.2 to a low of 1.4 percent. Therefore, probably the narrow spectrum of the Zn/Pb ratio is fortuitous (Appendix 5).

Pendant or hip masks (PM)

The Bini facial representations on this smaller variety rectangular plaque (fig.PM:1) are very remindful of the 29.2 cm. high pectoral work worn by the Atah of Idah (Dark 1973,pl.32). This mask is generally thought to have been made during the first decades of the sixteenth century (Fagg 1960,33; Murray 1949,86,92; Boston 1969,39). However, Dark believes it is of a somewhat more recent vintage (1973,96). All the commentators do agree it was cast in Benin. If the dating of the mask is correct, it is possible that the Benin plaque was done at an earlier date because it appears to be a neomorphic solution. This could be circular or specious reasoning because the Idah work may have been dated from the plaque.

The chemical alloy ratios of PM:1 (BM:M.Reg.98.1-15.170) are: Zn/Pb of 8.33 and Sb/As of 4.00.

Females (F)

The Queen Mother plaque (fig.F:1) has been discussed briefly in an earlier section. It is one of three or four (the others do not seem to represent females, see Bradbury 1973,pl.II). It is believed that the

pieces in the possession of the Ezomo were made serially or one is a modern copy of the others (Ben-Amos 1979, personal communication). The identification and dating of these plaques becomes extremely important for two reasons: a. they could provide evidence of a casting tradition outside of the palace and b. the copying of earlier works may have been an established practice.

As to the second reason one has little or no doubt copying of earlier works was an established practice both in relief and full sculpture casting. A comparison between the various plaques such as the Oba or Warrior groups leaves little doubt concerning constant repetition. The same is true in the fully sculptured works when one takes into account such objects as the aquamaniles, cross-bearers, Musketeer and Oba heads. The major unanswered problem is whether themes done for the palace were repeated on plaques done for other patrons.

A casting tradition outside the palace is also discernible without the need of the problematical Queen Mother plaque. The Udo style heads, the Ijebu-Ode stool, Idah mask and the two skulls found in the Niger delta are examples of work that may have been done for other patrons. There is no reason why plaques could not also have been cast for others.

Plaque F:1 is a unique composition and therefore cannot be compared directly to any of the other nine hundred or so wall reliefs. Similarities do exist to eighteenth century shrine and altar full sculptures (von Luschan 1919,Taf.83,86). However, when the entire composition is considered one is left with the feeling that F:1 is a combination of bits and pieces from many different plaques and full plastique, e.g. females holding the ada and eben, the attendants holding the stool or kola box and the libation bowl and the strange shape of the Queen Mother's cap, with the beaded headband. Also, the particularized style of the mudfish, especially the presence of the barbels on the upper relief and their absence on the lower version. It is strange to see the upper low-reliefed fish going beyond the picture plane and a horizontal projection upon which the Queen's feet rest.

A direct comparison of F:1 with two late Queen Mother heads (Berlin III C 8186 and 7660) shows that neither of the heads have the long side beaded strings, the beaded headband, feather in the cap or the format of the cap worn by the plaque figure. Additionally the shape of the lips and the configuration of the forehead circatrices are different. To this writer's knowledge physical data do not exist concerning the plaque. If Paula Ben-Amos is correct then the plaque can be taken along with the other two, as definitive evidence of more than one style existing for plaque manufacture.

Chapter 10

Historical Summary

In the traditional sense an 'Historical Summary' is a precis gleaned from the main body of a work constructed from written and oral primary and secondary sources. In this particular case chemical data were also considered as a primary historical source since they are a vital portion of any art historical analysis of the wall reliefs.

It is still very dimly perceived but it is probable that connections did exist between the various Nigerian casting traditions. Such relationships should not be considered as dependent upon whether an actual transfer of the cire-perdue technique did occur from one site to another. Of primary importance is the consistency of conceptualization and the resultant morphological manifestation through form and iconography. The significance of similarities in style, alloy content and technique are valuable as they are major indicators of cultural links.

In the light of the available evidence the oral tradition of a transfer of casting from Ife to Benin must be given another interpretation. The most promising area which warrants further extensive investigation is the middle-belt astride the Niger-Benue confluence. The similarities in alloy content, morphology and possibly technique point strongly in this direction.

The thinking of Professor Shaw that bronze was early and brass was late appears to be reinforced when one considers the initial Benin pieces to have been those which bear the current appellation of 'Lower Niger Industries'. It is paradoxical to label the Ife finds as having been made in Ife without any evidence of a brass-casting industry ever existing, and the Bini sculptures as belonging somewhere else when they were found in Benin, and there is a current industry which stretches back centuries. In the opinion of the present writer these were the early Bini pieces, and may very well pre-date the coming of the Portuguese. It is further believed that the earlier Bronze Period terminated, or a hiatus set in about the time of Ewuare. The presence of the Europeans and the availability of foreign materials caused a fluorescence into the second Brass period.

It is probable that European brass reached the Bini, in the hinterland, prior to the actual Portuguese presence in the city. None of the plaques have a chemical content which match the early bronze Bini full sculptures. The handful of relief bronzes which do exist (Appendix 5) seem to be a mixture of this early bronze and the later European brass. The European subject matter of EW:2 (BM:M.Reg.98.1-15.12), EO:1 (BM:M.Reg.98.1-15.8) and IN:1 (BM:M.Reg.1913.12-11.1) preclude these particular works from having been cast prior to 1486. The two mudfish pieces, FS:11 (BM:M.Reg.98.1-15.189) and FS:12 (Berlin III C 8250) are close enough in alloy content and morphology to each other to cause one to suspect that they were cast at approximately the same time and modelled by the same person or persons. In addition the closeness of the chemical data to the above European figurative compositions negates a serious consideration of pre-Portuguese manufacture. The two Bini personage compositions, Berlin III C 8255 and III C 8266 (von Luschan 1919,Taf.18e, 49d,e) have a very similar alloy content to the European figurative reliefs. It is possible for a fortuitous set of events to have occurred which would account for this but one can only think it would not be probable. Morphologically the plaques fit within Period I. The python, P:2 (BM:M.Reg.98.1-15.203), has a zinc and tin composition which matches that found in HRPS:3a, (BM:M.Reg.98.1-15.74) and IN:1. The higher cylindrical reliefed modelling of the body and head and the reliefed body patterns are very consistent with Period I.

The only plaque which can be labelled as pure copper (EWW:2, III C 8366) is a figurative piece of two Europeans. The boss on O:6 (BM:M. Reg.98.1-15.34) and the statuette of a carnivore's skull (BM:M.Reg. 1905.4-13.62; similar to SK:1) are also copper.

It is highly unlikely that two dimensional wall-relief casting was done by the Bini prior to 1486, though European alloys could well have been in use by that date. EB:4, (Berlin III C 19276) is a fragment of a reliefed pendant (23 x 28 cm.) with an alloy content that is remindful of the earlier Bini bronzes (Zn/0.6,Pb/0.2,Sn/4.7,Ni/0.04, As/0.16,Sb/0.12 percent). Stylistically and iconographically this work belongs with the eighteenth century shrine full sculpture and the large D-shaped reliefs. The anomaly in chemical composition can be attributed to recasting an earlier work. If one does assume EB:4 is a pre-Portuguese bronze, then the position of the advocates of bas-relief wall plaques being a next step development from earlier ivory and wood relief carving is strengthened.

The Ahamman Giwa tradition, reported by Roupell, of a white man coming with the Europeans who taught the Bini the art of making wall reliefs during the reign of Esigie or Orhogbua is to the present writer the more acceptable version of the re-institution of metal casting. The wall plaques, according to Ben-Amos, are all related to Olokun, and of the Portuguese coming from the sea through the use of the foliate or circled-cross basal plane incised motif. These patterns are not observed prior to the European advent. Further, the absence of these designs can be taken as correlative evidence of an interruption of the Bini metal casting tradition sometime before the above date.

Since there does not appear to be a reversal of the usual pro-morphic to neomorphic solution with experience level then it must be taken that the earliest figurative compositions are the large two section flat rectangular modelled reliefs. These works (figs.EW:13; p.9 WLH:1) p.75 emulate the European head to body ratio of 7.5/1, and the cinquecento method of cire-perdue casting. The wall-reliefs indicate this proportion was rather quickly abandoned for the more usual African Fibonacci series head to torso ratio.

The weapons and dress observed on EW:13 are consistent with second third sixteenth century European fashion. It cannot be stated with certainty whether the first figurative compositions depicted Bini or European personages. However, the overall size (EW:13.78.8 x 37 cm.; WLH:1. 80 x 36.8 cm.), alloy content (EW:13.BM:M.Reg.98.1-15.2, Zn/11.0, Pb/11.0,Sn/1.0,Ni/0.45,As/0.2,Sb/0.8; WLH:1a, Berlin III C 10879, Zn/11.0, Pb/10.2,Sn/0.7,Ni/0.42,As/0.17,Sb/1.1; WLH:1b, BM:M.Reg.98.1-15.35, Zn/ 9.3,Pb/12.0,Sn/0.9,Ni/0.42,As/0.31,Sb/0.65) and morphology are similar enough to warrant the conclusion that they were all modelled and cast at the same time. Three other circled-cross background motif plaques (O:6, p.54 BM:M.Reg.98.1-15.34, Zn/10.6,Pb/12.5,Sn/0.7,Ni/0.37,As/0.35,Sb/0.8; WC0:1, p.108 BM:M.Reg.98.1-15.36, Zn/11.0,Pb/12.0,Sn/0.8,Ni/0.44,As/0.2,Sb/1.1; FS:1, p.40 Berlin III C 8468, Zn/7.16,Pb/10.0,Sn/0.6,Ni/0.36,As/0.10,Sb/0.5 percent) have alloy contents and morphologies which match EW:13 and WLH:1.

The Iwoki guild was formed during the reign of Esigie and is concerned with celestial phenomena. Plaque IO:1 p.17 (Berlin III C 8481, Zn/ 12.9,Pb/8.6,Sn/2.4,Ni/0.12,As/0.09,Sb/0.30 percent) has been interpreted to signify this organization. Two other inanimate object plaques IO:2, p.18 (Berlin III C 8452, Zn/9.8,Pb/6.4,Sn/2.3,Ni/0.13,As/0.09,Sb/0.25 percent) and IO:6 p.18 (Berlin III C 8451, Zn/9.0,Pb/6.0,Sn/2.7,Ni/0.12,As/0.08, Sb/0.30) have alloy contents close enough to also warrant a tentative conclusion that they could have been made at the same time.

A wall relief (BM:M.Reg.98.1-15.97,Zn/17.50,Pb/2.2,Sn/0.7, Ni/0.16,As/0.15,Sb/0.05 percent) of a sword scabbard when compared to a relief on which three Europeans are depicted (BM:M.Reg.98.1-15.1, Zn/17.20,Pb/6.2,Sn/0.5,Ni/0.20,As/0.15,Sb/0.05 percent) again indicates great similarity in alloy content.

This type of comparison may on occasion give rise to spurious conclusions. However, when six elements are compared and they are similar to one another one would think that any coincidental factor would be quite small. This would be especially true in such groups as the circled-cross series where morphology was an additional consideration. One is able to conclude from all of the above that it is very unlikely that bas-relief plaque manufacture started prior to the Esigie era.

There is no doubt that remelting occurred. This is evidenced by the Brass period true bronzes which are a mixture of the earlier bronze and later brass and the clustering that is noticed on the semi-logarithmic plot of Zn/Pb vs. Sb/As ratios. It was originally thought this graphical phenomena was due to the plaques having been manufactured in a very short period of time. However, when the high relief two dimensional pieces are compared to the full sculptures, e.g. ECF:1 (III C 8056) to FE:1 (III C 17117), WBC:1 (Musee De L'Homme), WB:2 (Berlin III C 8208) and WBC:3 (Berlin III C 7657) to the later heads, such as type 4 and 5 (see Heads:4,5), the concept of a short time period of manufacture must be abandoned because of the internal consistency within Benin art. The lead isotope data also tend to confirm that remelting had taken place.

The present writer is of the opinion that the wall reliefs served more than one function and there was no prohibition against recasting existing works which did not have a religious or cosmological significance. Many of the palace functionary and warrior compositions would be ideal as they were more than likely archetypes and not portraits of any one particular individual or outstanding event. WBC:3 (Berlin III C 7657, Zn/12.2,Pb/1.8,Sn/0.5,Ni/0.13,As/0.08,Sb/0.18) and ECF:1 (Berlin III C 8056, Zn/7.0,Pb/1.3,Sn/0.7,Ni/0.16,As/0.17,Sb/0.20) are illustrative of the above. Because of the remelting problem it is very doubtful whether Benin alloy data can ever be used as a primary dating tool. Its value in art historical studies would seem to lie as a comparative device and as correlative evidence to visual observation.

The zinc alloy content increased significantly during the eighteenth century. It was about this time that the thermodynamic peak of the cementation process had been reached and Europe was undergoing a transition in brass manufacture. Plaque CNH:4 (BM:M.Reg.99.6-10.2,

Zn/34.50,Pb/0.85,Sn/0.35,Ni/0.3,As/0.05,Sb/n.d.) is most probably an example of either late eighteenth or nineteenth century brass smelting. It is a better example in that it definitively illustrates the constancy or repetitiveness of Bini traditional themes throughout the entire production period.

There is insufficient positive evidence to warrant the conclusion that plaque manufacture terminated about the middle of the seventeenth century. The Fagg thesis based on the absence of a comment about wall plaques by a visitor to Benin during the opening years of the eighteenth century must for this reason be considered untenable. Professor Dark is incorrect in postulating a cut-off date which is dependent upon subjective interpretation of differences in iconography. In the Dark scheme the large D-shaped plaques, CNH:4, p. 67 the problematical series, illustrated herein by F:1, p. 162 WBC:3, and the Esigie-Eresoyne stool have been disregarded. Neither of these writers have considered the available chemical data or the probability of recasting earlier sculptures. Perhaps the most significant objection to these hypotheses is that they are based upon the blanket acceptance of a single oral tradition. The present writer does not have any objection to a scholar accepting evidence, even if it is rank hearsay and tenuous provided a logical argument is presented and reasons given for rejecting contra-indicative information. Needless to say in both of these cases this was not done. The Williams morphological approach coupled with chemical and physical data holds the most promise, at present, for eventually determining a comprehensive chronology of Benin art.

The plaques have been divided into two manufacturing periods: I. Esigie to Akenzua I; II. Eresoyne to Osemwede (?). Actual dates cannot be assigned because of the uncertainties involved as to when events took place, and the inaccuracies in the available kingship lists.

Akenzua's reign was chosen as the end of Period I because he is thought to have been the early eighteenth century Oba who managed to stabilize and re-institute expansion of the empire. He also broke the commercial power of the Eghaevo n'Ore and their leader the Iyase, permitting him to re-assume the role of political head of state. His immediate successor Eresoyne was another powerful king who continued the expansion and retained the strong interest in commerce. All the oral traditions and historical information tend to agree that the eighteenth century was a period of Benin renascence in commerce, politics and art. The emphasis in cire-perdue casting shifted from two dimensional to full sculpture. Alloy content dramatically changed with zinc percentages substantially increasing, commensurate decreases in lead, tin and the

Sb/As ratios becoming reciprocal. Osemwede (?) was selected for closing the traditional periods because he was a mid-nineteenth century Oba as well as to indicate the probable hiatus in plaque casting until the third or modern period began in the twentieth century.

It is doubtful whether the form was ever completely terminated. Two commemorative plaques were cast in the reign of Akenzua II; one depciting the Oba sacrificing an elephant and the second honoring the visit of Elizabeth II. Brass casting still exists and plaques are now manufactured for commercial purposes.

Only the European figurative relief compositions can be dated with any degree of certainty. Weapons and dress place this group to the second third of the sixteenth century. The six war or trophy plaques (WS:1-6) pp. 59-60 have been dated to the last third of the sixteenth century using oral traditions and the varying accurate kingship lists. All of the plant and animal compositions with the possible exceptions of FS:6 p. 42 and 15 p. 43a are considered as Period I reliefs. All of the large variety D-shaped (D:1,2,3) pp. 56-58 pieces have been placed into Period II because of morphology and alloy content. The two smaller similarly shaped pieces, CNH:4 and 6 are also assigned to the latter era.

The present writer is of the opinion that the Dark type 4 Oba memorial heads were also modelled on the plaques. The flanges being represented by the ring of leopard's tooth collar (figs. WBC:1,2,3,6 pp. 90-94 and 10). Variations in the number and placement of the bead clusters are believed to be an artistic variant. If the thermoluminescence date of the sub-type 3, type 4 head of A.D. 1737±30 is accepted then the high relief two dimensional castings such as WBC:1,2,3,6 and 10 must be considered as contemporary or nearly so with this head. It is doubtful that plaque casting preceded the other cast forms by about a century.

A thermoluminescence date of A.D. 1817±15 has been reported for the type 5 or Oba memorial head with the winged cap. Again, if this date is correct then WBC:3, on which the central warrior figure is wearing a similar type hat, should be taken as having been manufactured about the same time. It is more probable that the type 5 Oba heads have been incorrectly dated because of the error in accepting the tradition which recounts how Osemwede invented the winged cap. It would be more satisfactory to move the beginning of manufacture of this type head to the eighteenth century which would put the head chronology more in line with that of the plaques.

One of the most obvious unanswered questions which immediately arises concerns the differences in alloy content between the high relief WBC plaques and the late type 3 and types 4 and 5 heads. The only explanation which can be offered is that for some reason either these two forms were cast from different materials or the non-shrine plaques were remelted in order to fabricate the later reliefs.

The predominant influences on Benin art were African. The Bini concept of mythical and perceptive space is derived from their cosmological and religious beliefs. This is responsible for the hieratic, full-frontal rigidized poses observed throughout the later works. Several of the earlier low reliefed castings such as the two-section plaques and others which approach the European body proportions were the result of European influence. Although it can be argued that the bent-leg poses (EW:1,2), the Europeans facing each other (von Luschan 1919,Taf.6c), and the multi-view Oba arm supporters (O:4,9) were the result of early Bini experimentation while learning the craft, more likely this is be the result of observation the concepts of mythical and perceptive space which cause the artisan to avoid perspective and foreshortening. The multi-view leopard (L:5,8) and fish (FS:9-12) compositions were more than likely indigenous developments. Whether 1590 was the terminus ante quem of the learning or experimental period as Williams seems to think cannot be corroborated.

Fagg's comment that plaque form stemmed from European influence cannot be taken as anything other than a suggestion. It just as easily could have been the outgrowth from ivory and wood relief carving or copied from the small (approximately 23 x 17 cm.) easily transportable south Indian reliefs (I:4).

Motifs such as the fish-legged figure, long billed bird with serpent and the maltese cross were most probably seen by the Bini and copied. None of the present hypotheses concerning how and when they arrived in Benin are totally satisfactory, and whether they pre-date 1486 is still shrouded in obscurity. The interlocking diamond pattern appears to be a direct copy from European sixteenth century armour. Such accoutrements as coral jewellery, hats, pellet bells, crossbows, brocaded and calicut cloth, and horse harness are strongly suggestive of European and trans-African trade.

In sections of this work the reliefs were treated almost sterilely with pre-selected inputs as if they existed in a vacuum. This was a necessary fiction in order to isolate the pieces and study the art form.

No artistic product could possibly be created or live in such an atmosphere. The final product, from the vantage of the viewer and creator, is composed of a myriad of corporeal and incorporeal factors, most of which are unknown and have to be conjectured. There is an additional burden in the study of African art because the majority of scholars, past and present, are products of an alien environment and have only spent limited time in the field. Errors of varying magnitude are bound to creep in because of this. One can only wonder if there is not an additional limiting factor similar to Heisenberg's uncertainty principle which plays a role in any such studies.

Appendix 1

Metallurgy

The Benin casting process has been extensively discussed elsewhere (Williams 1974; Dark 1973; Dark 1966,222-229; Hefel 1943,1-87). The standard text on casting in Africa is still Cline (1937, with an extensive bibliography contained in pages 143-150). Other works of interest are: Fischer (1965,95-114); Glück (1951,27-71) and Menzel (1968,11-35).

The discussion herein is limited to the particulars involved in casting bas-relief wall plaques.

The Benin technique utilized beeswax for the investment, and separate heating of the mould and metal. There is also a minimum of venting and spruing with the resultant gases, mostly water vapour, being absorbed by the mould during the casting process. The metal itself is heated in a reducing atmosphere under a charcoal cover. In order to obtain the necessary temperatures to effect casting forced or draught air was used. The modern technique uses an automobile battery powering a small blower. Prior to this, hand operated bellows were used. Temperature control depends upon the flame colour and the viscosity of the melt which is tested by a stick placed into the actual crucible. Crucibles are hand manufactured from a different clay than is used for the mould. The Binis call this river clay and it is greenish in colour. The usual Benin clay found throughout the area is reddish. Fuel for the casting furnace is charcoal, and timber is used for firing in the mould dryout and wax collecting fires. The heated mould is stood upright in a trench dug in the earth and then packed with earth. The crucible is handled with metal tongs and brought over to the mould, where the slag cover is scraped off and pouring effected. The mould is then cooled with water and after sufficient time has elapsed it is removed from the trench, and the casting is broken out of the mould. Subsequently, cleaning and chasing take place.

The attached series of photographs fairly well indicate the modelling process. Two examples have been illustrated; one of a single figure and the other of a multi-figured work (Appendix pp.121-123 figs.1-7). 180, 180a. The two other examples (p.181 figs.8,9) somewhat illustrate the methods used by the Bini artisan in effecting high-relief casting.

The usual modelling done on the core is the torso, including the head and the legs. The remainder of the composition is only modelled in wax. This results in the hands and feet and whatever other accoutrements which form part of the composition to be cast solid. The castings

are usually poured upside down (figs. pp.121, 124a. 1,5, lower right hand corner of the front view and lower left of the reverse for remains of the casting channel). This is in agreement with the Fagg and Willett remark about the Benin heads being cast upside down. The reverse side of both examples are studded with numerous lines which appear to be cracks. If they are cracks this could result from the water quench causing preferential cooling. It most probably is the result of poor wax-joints when the rolled out wax was placed over the mould core for detail modelling. The writer inclines to the latter since the cracks are absent from the front side of the casting. The irregular shaped holes one sees throughout the entire plaque series are most probably due to gases, predominantly water vapour, being trapped, or thin wax-sections because of the large exposed surface areas which quickly froze. The surface rougness of the reverse side, of the castings, indicates the core did not have a slurry or slip placed over it prior to the wax being laid down.

The casting of the eben (Appendix p.181 fig.9) is typical of the method employed for casting higher relief pieces. The horizontal cylinders which tie the sword to the base plane are modelled in wax and during burn out of the wax only channels are left which permit the fluid metal to fill the negative space.

The purposeful addition of lead during the brass manufacturing process embrittles the material besides adding casting fluidity. On a practical level to try and place the stippled and foliate background on the work after casting would result in an inordinate number of failures. Visual observation does seem to indicate these patterns were cast (Dark 1973,50). Appendix p.181 fig.8 in which half of the dress worn by the figure is stippled does suggest these incisions were placed after the casting or on the other hand it is most probably a purposeful pattern which could be the Bini method of expressing more than one colour.

Examination of the head on the single figured plaque (fig. p.122. Appendix 2) shows regular scratches between the top of the ikao and the hair which are the result of some abrasive material. The relative roughness of the surface may be indicative of slight core shift, lack of the use of a slurry or slip, and the pitting due to lead.

Analysen der Benin-Objekte

Lfd. Nr.	Katalog Nr.	Gegenstand	Abbildung*	% Zink	% Blei	% Zinn	% Eisen	% Nickel	% Arsen	% Antimon	% Wismut	% Kadmium	% Silber	% Gold	Lfd. Nr.
1	IIIC 8 176	Kopf m. Plinthe	Lu T.61d	28	3,0	Sp.	0,09	0,02	0,06	0,03	0,020	n.n.	0,03	0,0002	1
2	IIIC 8 203	Kopf m. Plinthe		27	2,7	Sp.	0,09	0,01	0,03	0,02	0,015	n.n.	0,03	0,0001	2
3	IIIC 8 198	Kopf m. Plinthe		28	2,0	Sp.	0,07	0,02	0,07	0,03	0,050	n.n.	0,03	0,0002	3
4	IIIC 8 191	Kopf m. Plinthe		28	2,4	Sp.	0,18	0,05	0,06	0,035	0,020	n.n.	0,03	0,0007	4
5	IIIC 8 189	Kopf m. Plinthe	Lu T.62a	29	2,9	Sp.	0,17	0,07	0,07	0,04	0,027	n.n.	0,08	0,0006	5
6	IIIC 8 186	Kopf m. Plinthe	Kr Abb.3	29	2,9	Sp.	0,17	0,044	0,05	0,03	0,020	n.n.	0,10	0,0005	6
7	IIIC 7 660	Kopf m. Plinthe		38	1,0	Sp.	0,08	0,066	0,06	0,02	0,043	n.n.	0,07	0,0007	7
8	IIIC 8 181	Figur	Lu T.107e	31	3,1	Sp.	0,15	0,068	0,08	0,02	0,015	n.n.	0,08	0,0006	8
9	IIIC 8 491	Runder Untersatz	Lu T.93	20	2,3	0,22	0,18	0,068	0,08	0,05	0,015	n.n.	0,12	0,0008	9
10a	IIIC 8 168	Gr. Gruppe, Sockel	Lu T.82	29	3,8	n.n.	0,08	0,05	0,07	0,03	0,035	n.n.	0,06	0,0006	10a
10b	IIIC 8 168	Gr. Gruppe, rechte Figur		26	3,7	n.n.	0,09	0,05	0,06	0,03	0,035	n.n.	0,06	0,0007	10b
10c	IIIC 8 168	Gr. Gruppe, Mittelfigur		22	7,0	0,22	0,16	0,07	0,27	0,08	0,015	n.n.	0,07	0,0005	10c
10d	IIIC 8 168	Gr. Gruppe, linke Figur		27	2,9	n.n.	0,13	0,05	0,07	0,02	0,025	n.n.	0,06	0,0006	10d
10e	IIIC 8 168	Gr. Gruppe, kl. Mann		27	3,6	n.n.	0,10	0,04	0,07	0,01	0,025	n.n.	0,06	0,0004	10e
11a	IIIC 20 296	Stuhl, Sockelrand	Lu Abb.814	3,6	3,7	1,3	0,15	0,23	0,08	0,22	0,002	n.n.	0,05	0,0012	11a
11b	IIIC 20 296	Stuhl, Mittelteil		3,4	2,8	1,0	0,12	0,23	0,05	0,17	0,001	n.n.	0,05	0,0011	11b
12	IIIC 8 527	Kl. Kopf	Lu T.55a	9,1	1,2	0,6	0,08	0,08	0,15	0,13	0,005	n.n.	0,07	0,0011	12
13	IIIC 12 508	Kinderkopf	Lu T.57a u. 58a	4,7	3,4	1,4	0,17	0,13	0,10	0,43	0,015	n.n.	0,06	0,0010	13
14	IIIC 7 658	Kopf	Lu T.56a, c	5,4	1,1	0,7	0,07	0,07	0,08	0,19	0,005	n.n.	0,05	0,0012	14
15	IIIC 12 513	Dünnwandiger Kopf	Lu T.65b, d	7,4	1,2	0,5	0,09	0,12	0,04	0,13	Sp.	n.n.	0,08	0,0010	15
16	IIIC 8 530	Weibl. Rundfigur	Lu T.106c	27	2,5	n.n.	0,07	0,03	0,04	0,03	0,030	n.n.	0,06	0,0010	16
17	IIIC 14 499c	Figur	Kr Abb.4	8,4	8,0	0,4	0,03	0,11	2,5	0,25	0,002	n.n.	0,07	0,0014	17
18a	IIIC 10 873	Figur m. Fischkopf (Flick)	Lu T.74	23	3,3	0,3	0,31	0,05	0,04	0,05	0,010	n.n.	0,07	0,0013	18a
18b	IIIC 10 873	Figur, Hauptteil		n.n.	Sp.	7,5	0,10	0,06	0,25	0,24	0,005	n.n.	0,08	0,0013	18b
19	IIIC 18 154	Rundfigur	Lu Abb.473	5,0	2,0	1,5	0,17	0,11	0,09	0,18	0,004	n.n.	0,06	0,0008	19

* Lu T.61d oder
Lu Abb.814 = Luschan, F. v. Die Altertümer von Benin. 3 Bde. Berlin und Leipzig 1919. Tafel 61d oder Abbildung 814.
Kr Abb.3 = Krieger, K. Das Schicksal der Benin-Sammlung des Berliner Museums für Völkerkunde. Baessler-Archiv, Neue Folge, Bd. 5, 1957, S. 225–232, Abbildg. 3.
Sy S.98 = Sydow, E. v. Die Kunst der Naturvölker und der Vorzeit. Berlin 1923. Abbildung auf Seite 98.
— = Keine Abbildung nachgewiesen.

Appendix 2 - Alloy Content Data
Benin Collection from Museum für Völkerkunde Berlin
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Analysen der Benin-Objekte

Lfd. Nr.	*Katalog Nr.*	*Gegenstand*	*Abbildung**	*% Zink*	*% Blei*	*% Zinn*
20	IIIC 8 075	Armmanschette	Lu T.99b	21	3,0	ca.0,1
21a	IIIC 8 514	Gr. Schlangenkopf, Hals	Lu T.77a u.78a	6,0	3,8	0,85
21b	IIIC 8 514	Gr. Schlangenkopf, Zunge		3,2	1,7	0,80
22	IIIC 8 515	Gr. Schlangenkopf m. Schuppen	Lu T.77d u.78d	25	3,2	n.n.
23a	IIIC 8 216	Gr. Schlangenkopf, Hals	Lu T.77b u.78b	n.n.	10	0,6
23b	IIIC 8 216	Gr. Schlangenkopf, Unterkiefer		24	3,6	Sp.
24	IIIC 8 215	Gr. Schlangenkopf, Hals	Lu T.77c u.78c	27	1,3	n.n.
25a	IIIC 8 085	Hahn, Körper	Lu T.76	9,0	9,0	2,0
25b	IIIC 8 085	Hahn, Sockel		12	6,2	0,7
26a	IIIC 8 165	Gr. Gruppe, Leopard	Lu T.81	23	2,8	Sp.
26b	IIIC 8 165	Gr. Gruppe, Figur		25	3,0	Sp.
26c	IIIC 8 165	Gr. Gruppe, kl. Figur		23	3,0	Sp.
26d	IIIC 8 165	Gr. Gruppe, Sockel		25	3,5	Sp.
27a	IIIC 8 488	Kasten, Oberteil	Lu T.90	22	3,3	Sp.
27b	IIIC 8 488	Kasten, Unterteil		22	2,5	Sp.
28	IIIC 9 948	Figur, Fuß	Lu T.67	2,3	1,1	6,5
29	IIIC 19 275	Figur m. Glocke	Lu Abb.450	—	0,1	8,7
30a	IIIC 10 872	Figur, Oberteil	Lu T.69	7,6	1,0	0,4
30b	IIIC 10 872	Figur, Unterteil		9,2	1,7	0,8
31a	IIIC 10 885	Ampelartiges Gefäß	Lu T.89a u.104e	26	2,2	0,05
31b	IIIC 10 885	Ampelart. Gefäß, Deckel		27	2,0	Sp.
31c	IIIC 10 885	Ampelart. Gefäß, Kette		27	2,2	Sp.
32	IIIC 8 754	Plakette	Lu T.98i	0,3	ca.0,1	0,7
33	IIIC 9 952	Anhänger	Lu T.97a	26	2,4	n.n.
34	IIIC 19 276	Plakette	Lu Abb.426	0,6	0,2	4,7
35	IIIC 8 753	Plakette	Lu T.98g	2,1	1,2	1,4
36	IIIC 17 118	Leopardenschädel	Sy S.98	24	1,5	0,10
37	IIIC 8 756	Maske	Lu T.96d	25	2,5	0,15
38	IIIC 9 951	Anhänger	Lu T.97b	26	2,2	n.n.
39	IIIC 10 883	Büchse	Lu T.103a u. 104a	26	2,4	Sp.

% Eisen	*% Nickel*	*% Arsen*	*% Antimon*	*% Wismut*	*% Kadmium*	*% Silber*	*% Gold*	*Lfd. Nr.*
0,13	0,07	0,06	0,05	0,015	n.n.	0,08	0,0008	20
0,51	0,14	0,07	0,24	0,002	n.n.	0,05	0,0010	21a
0,08	0,10	0,08	0,22	0,010	n.n.	0,06	0,0009	21b
0,06	0,09	0,04	0,03	0,004	n.n.	0,06	0,0010	22
0,02	0,13	2,3	0,42	0,008	n.n.	0,06	0,0005	23a
0,18	0,08	0,15	0,04	0,010	n.n.	0,05	0,0006	23b
0,08	0,03	0,11	0,03	0,010	n.n.	0,06	0,0009	24
0,30	0,15	0,16	0,47	0,006	n.n.	0,07	0,0008	25a
0,28	0,16	0,07	0,25	0,002	n.n.	0,07	0,0006	25b
0,14	0,05	0,04	0,02	0,005	n.n.	0,10	0,0005	26a
0,17	0,06	0,07	0,02	0,024	n.n.	0,06	0,0005	26b
0,14	0,06	0,04	0,02	0,010	n.n.	0,10	0,0006	26c
0,11	0,08	0,04	0,02	0,002	n.n.	0,10	0,0006	26d
0,14	0,08	0,04	0,02	0,002	n.n.	0,10	0,0006	27a
0,08	0,05	0,05	0,02	0,002	n.n.	0,08	0,0005	27b
0,12	0,07	0,27	0,13	0,030	n.n.	0,07	0,0008	28
0,15	0,03	0,27	0,05	0,002	n.n.	0,08	0,0007	29
0,04	0,04	0,06	0,12	0,001	n.n.	0,09	0,0003	30a
0,08	0,06	0,09	0,18	0,030	n.n.	0,12	0,0008	30b
0,12	0,12	0,06	0,03	0,016	n.n.	0,05	0,0020	31a
0,06	0,07	0,04	0,03	0,007	n.n.	0,07	0,0025	31b
0,05	0,08	0,05	0,03	0,005	n.n.	0,07	0,0028	31c
0,03	0,04	0,16	0,05	0,002	n.n.	0,07	0,0009	32
0,04	0,05	0,07	0,04	0,025	n.n.	0,07	0,0007	33
0,08	0,04	0,16	0,12	0,010	n.n.	0,05	Sp.	34
0,09	0,07	0,11	0,29	0,009	n.n.	0,09	Sp.	35
0,09	0,04	0,05	0,02	0,015	n.n.	0,08	Sp.	36
0,10	0,06	0,09	0,05	0,027	n.n.	0,09	Sp.	37
0,16	0,12	0,02	0,03	0,006	n.n.	0,06	Sp.	38
0,26	0,09	0,07	0,04	0,016	n.n.	0,05	0,0005	39

Analysen der Benin-Objekte

Lfd. Nr.	*Katalog Nr.*	*Gegenstand*	*Abbildung**	*% Zink*	*% Blei*	*% Zinn*	*% Eisen*	*% Nickel*	*% Arsen*	*% Antimon*	*% Wismut*	*% Kadmium*	*% Silber*	*% Gold*	*Lfd. Nr.*
40a	IIIC 8 166	Gr. Gruppe, Figur links hinten	Lu T.83	27	3,0	Sp.	0,12	0,07	0,06	0,04	0,028	n.n.	0,08	ca. 0,0001	40a
40b	IIIC 8 166	Gr. Gruppe, Sockel		26	2,6	Sp.	0,13	0,06	0,06	0,04	0,026	n.n.	0,07	0,0002	40b
41a	IIIC 17 117	Figur eines Reiters	Lu T.73	17	1,4	0,3	0,36	0,19	0,04	0,07	0,010	n.n.	0,06	0,0005	41a
41b	IIIC 17 117	Figur, Sockel		18	2,2	0,4	0,39	0,19	0,05	0,06	0,050	n.n.	0,05	0,0010	41b
42a	IIIC 8 164	Gr. Gruppe, Figur	Lu T.79	28	2.5	n.n.	0,09	0,07	0,07	0,03	0,030	n.n.	0,05	0,0001	42a
42b	IIIC 8 164	Gr. Gruppe, Sockel		25	2,1	n.n.	0,18	0,06	0,06	0,04	0,028	n.n.	0,06	0,0001	42b
43	IIIC 8 477	Platte, Schlangen	Lu T.47f	4,0	4,1	1,2	0,30	0,15	0,10	0,30	0,028	n.n.	0,07	0,0001	43
44	IIIC 8 261	Platte, Mann	Lu T.18b	13	2,3	1,2	0,32	0,16	0,06	0,11	0,026	n.n.	0,06	0,0001	44
45	IIIC 8 211	Platte, 2 Männer	Lu T.34b	6,8	3,1	3,1	0,26	0,68	0,33	0,65	0,045	n.n.	0,06	0,0001	45
46	IIIC 8 471	Platte, 2 Welse	Lu T.48/6	6,4	5,0	1,4	0,14	0,16	0,07	0,33	0,003	n.n.	0,06	0,0008	46
47	IIIC 8 456	Platte, Fächer	Lu T.49a	5,0	3,6	1,8	0,31	0,14	0,07	0,26	0,001	n.n.	0,08	0,0008	47
48	IIIC 8 429	Platte, Vogel	Lu T.45a	5,7	3,5	1,7	0,32	0,12	0,12	0,27	0,010	n.n.	0,07	0,0002	48
49	IIIC 8 269	Platte, 2 Fische	Lu T.48/9	15	2,1	0,6	0,40	0,16	0,05	0,12	0,004	n.n.	0,06	0,0011	49
50	IIIC 8 250	Platte, 5 Fische	Lu T.48/10	1,5	1,6	5,4	0,06	0,10	0,18	0,34	sp.	n.n.	0,07	0,0006	50
51	IIIC 8 451	Platte	Lu T.49b	9,0	6,0	2,7	0,22	0,12	0,08	0,30	0,025	n.n.	0,06	0,0009	51
52	IIIC 8 428	Platte, Vogel/Fisch	Lu T.45d	7,8	3,7	1,3	0,31	0,21	0,05	0,23	0,020	n.n.	0,05	0,0005	52
53	IIIC 8 391	Platte, Afrikaner	Lu T.9	14	7,6	0,3	0,47	0,20	0,05	0,17	0,014	n.n.	0,04	0,0008	53
54	IIIC 8 374	Platte, 3 Figuren	Lu T.31d	17	9,0	0,2	0,33	0,18	0,06	0,40	0,035	n.n.	0,04	0,0009	54
55	IIIC 8 268	Platte, Fisch	Lu T.48/4	12,2	1,9	1,2	0,32	0,12	0,07	0,16	0,004	n.n.	0,05	0,0007	55
56	IIIC 8 486	Platte, 2 Leoparden	Lu T.44/5	13,6	6,5	0,9	0,44	0,25	0,10	0,53	0,003	n.n.	0,05	0,0008	56
57	IIIC 8 436	Platte, Leopardenkopf	Lu T.44/7	4,0	2,0	1,4	0,10	0,09	0,26	0,17	0,005	n.n.	0,05	0,0004	57
58	IIIC 8 275	Platte, Afrikaner	Lu T.39f	12,3	6,0	0,9	0,14	1,0	0,15	0,62	0,015	n.n.	0,06	0,0005	58
59	IIIC 8 385	Platte, Afrikaner	Lu T.28b	16,5	10,5	0,7	0,21	0,28	0,13	0,62	0,011	n.n.	0,06	0,0001	59
60	IIIC 8 450	Platte, Leopard	Kr Abb.5	11,9	8,2	0,6	0,52	0,14	0,05	0,25	0,011	n.n.	0,04	0,0001	60
61	IIIC 8 485	Platte, Leopardenkopf	Lu T.44/2	12,7	7,6	0,9	0,43	0,18	0,08	0,50	0,005	n.n.	0,05	0,0001	61
62	IIIC 8 376	Platte, 3 Afrikaner	Lu T.13	10,1	7,0	2,6	0,32	0,11	0,09	0,33	0,011	n.n.	0,05	0,0006	62
63	IIIC 7 651	Platte, Afrikaner	Lu T.18f	10,0	6,6	0,4	0,54	0,16	0,06	0,12	0,015	n.n.	0,06	0,0005	63
64	IIIC 8 396	Platte, Afrikaner, kl. Figur	Lu T.10d	9,4	5,6	1,5	0,50	0,12	0,09	0,24	0,015	n.n.	0,05	0,0006	64
65	IIIC 27 506	Platte, Afrikaner, 2 kl. Fig.	Lu Abb.156	10,7	5,8	2,1	0,42	0,58	0,20	0,70	0,023	n.n.	0,05	0,0005	65
66	IIIC 8 373	Platte, Afrikaner	Lu T.21b	20,5	11,2	0,6	0,57	0,35	0,10	0,37	0,020	n.n.	0,03	0,0010	66
67	IIIC 8 755	Platte, 3 Figuren	Lu T.42	15,2	5,7	0,6	0,34	0,19	0,10	0,10	0,012	n.n.	0,04	0,0002	67
68	IIIC 8 427	Platte, Vogel	Lu T.45a	5,4	2,5	1,0	0,33	0,14	0,09	0,13	0,015	n.n.	0,05	0,0001	68

Analysen der Benin-Objekte

Lfd. Nr.	Katalog Nr.	Gegenstand	Abbildung*	% Zink	% Blei	% Zinn	% Eisen	% Nickel	% Arsen	% Antimon	% Wismut	% Kadmium	% Silber	% Gold	Lfd. Nr.
69	IIIC 8 437	Platte, Leopard	Lu T.44/4	7,2	14,8	3,0	0,17	0,09	0,27	0,75	0,030	n.n.	0,07	0,0001	69
70	IIIC 8 214	Platte, Mann m. Querhorn	Lu T.39c	8,0	5,4	2,0	0,41	0,14	0,10	0,28	0,003	0,001	0,06	Sp.	70
71	IIIC 8 438	Platte, Leopard	Lu T.44/6	9,8	6,5	2,1	0,45	0,12	0,11	0,30	0,003	n.n.	0,07	0,0005	71
72	IIIC 8 392	Platte, Afrikaner m. Speer	Lu T.8c	3,6	2,1	1,2	0,36	0,10	0,22	0,25	0,002	n.n.	0,06	0,0002	72
73	IIIC 8 256	Platte, Mann m. Stab	Lu T.41c	18,5	8,2	0,1	0,37	0,21	0,08	0,12	0,003	n.n.	0,05	Sp.	73
74	IIIC 8 372	Platte, 2 Männer	Lu T.27c	16,6	9,5	0,1	0,45	0,14	0,08	0,32	0,014	Sp.	0,05	0,0004	74
75	IIIC 8 249	Platte, Schlange	Lu T.47b	3,3	5,2	3,1	0,36	0,24	0,20	0,76	0,020	Sp.	0,07	0,0001	75
76	IIIC 8 468	Platte, Wels	Lu T.48/7	7,6	10,0	0,6	0,62	0,36	0,10	0,50	0,025	Sp.	0,06	Sp.	76
77	IIIC 8 467	Platte, Fisch	Lu T.48/16	3,7	3,5	2,2	0,21	0,13	0,13	0,33	0,012	0,001	0,07	0,0005	77
78	IIIC 8 452	Platte, Zeremonialschwert	Lu T.49c	9,8	6,4	2,3	0,42	0,13	0,09	0,25	0,12	Sp.	0,06	Sp.	78
79	IIIC 8 258	Platte, Afrikaner	Lu T.25f	15,0	1,9	1,1	0,36	0,17	0,07	0,12	0,013	Sp.	0,05	0,0012	79
80	IIIC 8 387	Platte, Figur	Lu T.38d	10,5	8,2	2,4	0,45	0,10	0,09	0,24	0,013	Sp.	0,05	0,0007	80
81	IIIC 8 481	Platte, Kreisfigur	Lu T.50/10	12,9	8,6	2,4	0,41	0,12	0,09	0,30	0,019	< 0,001	0,05	0,0010	81
82	IIIC 8 257	Platte, Mann	Lu T.36f	14,5	7,4	0,6	0,49	0,22	0,06	0,25	0,015	< 0,001	0,05	0,0008	82
83	IIIC 8 352	Platte, Europäer m. Armbrust	Lu T.45b	18,0	8,5	0,9	0,44	0,26	0,11	0,65	0,020	Sp.	0,05	n.n.	83
84	IIIC 8 433	Platte, Krokodilkopf	Lu T.46/3	4,5	5,2	2,8	0,25	0,10	0,18	0,66	0,012	< 0,001	0,07	0,0008	84
85	IIIC 8 206	Platte, Vogeljagd	Lu T.29	12,0	7,3	1,8	0,60	0,21	0,13	0,36	0,032	< 0,001	0,08	0,0022	85
86	IIIC 8 205	Platte, Afrikaner	Lu T.20a	18,5	8,2	0,5	0,37	0,16	0,10	0,19	0,008	n.n.	0,10	n.n.	86
87	IIIC 8 383	Platte, Afrikaner unter Baum	Lu T.27d	10,3	6,7	1,6	0,55	0,19	0,10	0,34	0,007	< 0,001	0,08	0,0003	87
88	IIIC 8 440	Platte, 2 Afrikaner	Lu T.38b	8,2	6,8	4,5	0,60	0,20	0,20	0,45	0,012	< 0,001	0,07	Sp.	88
89	IIIC 8 209	Platte, Afrikaner m. Schwert	Lu T.14	10,5	6,8	0,9	0,38	0,18	0,08	0,18	0,006	< 0,001	0,08	Sp.	89
90	IIIC 7 657	Platte, Afrikaner m. Speer	Lu T.23	12,2	1,8	0,5	0,43	0,13	0,07	0,15	0,002	0,0010	0,10	Sp.	90
91	IIIC 20 830	Platte, Afrikaner m. Gefäß	Lu Abb.324	4,7	1,9	1,3	0,37	0,22	0,10	0,25	0,010	0,0015	0,08	0,0005	91
92	IIIC 7 656	Platte, Europäer m. Geldringen	Lu T.5c	10,8	4,5	1,3	0,40	0,16	0,10	0,22	0,002	0,0015	0,07	0,0005	92
93	IIIC 8 349	Platte, Europäer m. Gewehr	Lu T.2b	13,0	8,5	0,6	0,52	0,15	0,10	0,25	0,009	0,0010	0,05	0,0005	93
94	IIIC 8 367	Platte, Europäer m. Stock	Lu T.5a	8,4	5,6	2,4	0,50	0,18	0,15	0,35	0,007	0,0025	0,07	0,001	94
95	IIIC 8 382	Platte, Afrikaner	Lu T.32	15,5	9,4	0,3	0,52	0,22	0,09	0,22	0,007	0,0015	0,06	Sp.	95
96	IIIC 27 507	Platte, Afrikaner	Lu Abb.306	11,0	6,0	0,4	0,88	0,29	0,11	0,14	0,007	0,0025	0,06	0,0006	96

Analysen der Benin-Objekte

Lfd. Nr.	Katalog Nr.	Gegenstand	Abbildung*	% Zink	% Blei	% Zinn	% Eisen	% Nickel	% Arsen	% Antimon	% Wismut	% Kadmium	% Silber	% Gold	Lfd. Nr.
97	IIIC 8 266	Platte, Afrikaner	Lu T.49d, e	1,8	2,4	8,3	0,11	0,21	0,30	0,45	0,010	0,0020	0,08	0,0006	97
98	IIIC 8 358	Platte, Europäer m. Dreizack	Lu T.4b	17,0	6,4	0,4	0,58	0,28	0,05	0,24	0,007	< 0,001	0,03	Sp.	98
99	IIIC 8 252	Platte, Rinderkopf	Lu T.45b	3,5	8,0	2,8	0,21	0,19	0,24	0,88	0,018	< 0,001	0,05	0,0005	99
100	IIIC 10 879	Platte, Afrikaner m. Schild	Lu T.16a	11,0	10,2	0,7	0,72	0,42	0,17	1,1	0,012	< 0,001	0,10	Sp.	100
101	IIIC 8 277	Platte, Afrikaner	Lu T.25e	15,0	6,0	0,5	0,43	0,13	0,06	0,10	0,010	0,001	0,07	0,0009	101
102	IIIC 8 411	Platte, Afrikaner	Lu T.34a	18,5	9,8	0,1	0,42	0,34	0,07	0,40	0,014	Sp.	0,07	0,0003	102
103	IIIC 8 353	Platte, 3 Europäer	Lu T.6d	1,3	0,7	0,8	0,13	0,06	0,08	0,19	0,003	0,007	0,08	0,0005	103
104a	IIIC 8 054	Platte, 7 Afrikaner, Schild	Lu T.11	15,0	1,7	0,8	0,24	0,14	0,07	0,08	0,002	0,0008	0,06	0,0008	104a
104b	IIIC 8 054	Platte, 7 Afrikaner, Fuß		20,0	2,3	0,9	0,34	0,18	0,07	0,13	0,009	0,0010	0,10	0,0002	104b
105	IIIC 8 401	Platte, Afrikaner	Lu T.38f	4,7	3,2	1,8	0,50	0,16	0,12	0,35	0,010	0,0015	0,08	0,0013	105
106	IIIC 8 435	Platte, Krokodil	Lu T.46/8	6,2	2,9	2,9	0,25	0,19	0,11	0,27	0,003	0,0020	0,06	0,0015	106
107	IIIC 8 208	Platte, 5 Afrikaner	Lu T.19a	8,2	4,3	0,2	0,29	0,16	0,06	0,08	0,003	Sp.	0,05	Sp.	107
108	IIIC 8 055	Platte, 3 Afrikaner, Zeremonialschwerter	Lu T.19b	19,0	2,3	0,7	0,37	0,23	0,09	0,10	0,005	0,0010	0,05	0,0008	108
109	IIIC 8 393	Platte, Afrikaner m. Schwert	Lu T.7	14,0	6,8	0,1	0,31	0,26	0,06	0,22	0,007	0,0007	0,06	Sp.	109
110	IIIC 8 398	Platte, Afrikaner m. Schild	Lu T.16b	8,6	5,7	1,3	0,31	0,15	0,09	0,38	0,006	0,0008	0,07	Sp.	110
111	IIIC 8 459	Platte, Wels	Lu T.48/2	4,9	4,2	1,1	0,42	0,14	0,08	0,26	0,005	0,0009	0,07	Sp.	111
112	IIIC 8 432	Platte, Krokodilkopf	Lu T.46/6	3,6	3,2	1,1	0,48	0,15	0,06	0,27	0,004	< 0,001	0,05	0,0010	112
113	IIIC 8 207	Platte, Afrikaner	Lu T.37	2,7	1,8	0,7	0,29	0,13	0,04	0,24	0,005	< 0,001	0,05	0,0005	113
114	IIIC 8 350	Platte, Europäer m. Gewehr	Lu T.2c	5,4	3,3	1,8	0,24	0,12	0,06	0,22	0,005	0,001	0,05	0,0007	114
115	IIIC 8 267	Platte, Fisch	Lu T.48/15	8,0	1,4	0,6	0,36	0,13	0,06	0,13	0,005	Sp.	0,05	0,0007	115
116	IIIC 10 874	Platte, Afrikaner m. Schild	Lu T.15	11,0	4,7	0,4	0,35	0,20	0,06	0,13	0,003	< 0,001	0,05	0,0007	116
117	IIIC 8 461	Platte, Wels	Lu T.48/5	7,7	4,6	0,7	0,33	0,18	0,09	0,25	0,011	< 0,001	0,05	n.n.	117
118	IIIC 8 407	Platte, Afrikaner m. Stock	Lu T.26/5	14,7	8,8	1,1	0,52	0,32	0,17	1,2	0,008	< 0,001	0,05	0,0012	118
119	IIIC 8 390	Platte, Afrikaner m. Zeremonialschwert	Lu T.20b	13,0	7,1	0,2	0,38	0,16	0,08	0,29	0,006	Sp.	0,07	0,0009	119
120	IIIC 8 255	Platte, Afrikaner m. Zeremonialschwert	Lu T.18e	1,6	1,4	6,5	0,10	0,12	0,11	0,32	0,007	< 0,001	0,08	0,0008	120
121	IIIC 27 485	Platte, 2 Leoparden	Lu Abb.62	9,5	0,9	0,3	0,35	0,11	0,04	0,08	0,003	< 0,001	0,08	0,0005	121
122	IIIC 8 366	Platte, 2 Europäer	Lu T.6a	1,3	1,1	0,7	0,09	0,06	0,06	0,20	0,011	< 0,001	0,08	0,0003	122

Analysen von Benin-Objekten

Lfd. Nr.	Katalog Nr.	Gegenstand	Abbildung*	% Zink	% Blei	% Zinn	% Eisen	% Nickel	% Arsen	% Antimon	% Wismut	% Kadmium	% Silber	% Gold	Lfd. Nr.
123	IIIC 8 446	Platte, Schwertscheide (?)	Lu T.49f	5,4	3,1	2,7	0,23	0,18	0,06	0,22	0,013	< 0,001	0,08	Sp.	123
124	IIIC 8 362	Platte, Europäer	Lu T.4d	5,6	3,6	1,7	0,64	0,21	0,10	0,88	0,027	< 0,001	0,05	0,0008	124
125a	IIIC 8 377	Platte, 4 Afrik., Dach	Lu T.40	5,0	1,4	0,7	0,21	0,14	0,11	0,25	0,007	Sp.	0,05	0,0006	125a
125b	IIIC 8 377	Platte, 4 Afrik., Fuß rechts		2,3	0,9	0,8	0,13	0,08	0,11	0,26	0,007	Sp.	0,06	0,0004	125b
126	IIIC 8 378	Platte, 3 Afrikaner	Lu T.30	9,7	3,1	0,4	0,48	0,62	0,16	0,68	0,007	< 0,001	0,06	0,0007	126
127	IIIC 12 529	Cu-Armreif m. Messing-Köpfen	Lu T.100h	17,6	1,9	0,4	0,45	0,21	0,08	0,11	0,005	Sp.	0,05	0,0006	127
128	IIIC 21 931	Fingerring m. Koralleneinlagen	Kr Abb.6	19,0	0,4	Sp.	0,06	0,02	0,04	0,01	0,007	0,001	0,03	0,0002	128
129	IIIC 27 490	Fe-Armring, Messingköpfe	Lu Abb.627b	22,0	1,6	0,2	0,17	0,13	0,19	0,11	0,023	0,004	0,04	Sp.	129
130	IIIC 12 535	Stab	Lu T.106b	12,2	4,5	1,0	0,49	0,25	0,11	0,24	0,005	0,001	0,05	0,0010	130
131	IIIC 10 869	Messer m. Schlangengriff	Lu T.105e	n.n.	0,4	n.n.	0,02	0,10	0,70	0,14	0,002	n.n.	0,08	0,0020	131
132	IIIC 41 194	Stab mit 2 Figuren		19,0	0,9	0,15	0,16	0,08	0,06	0,04	0,018	0,005	0,05	0,0007	132
133	IIIC 8 082	Klöppel einer Glocke	Lu T.105c	16,3	3,1	Sp.	8–10	0,10	0,17	n.b.	0,007	0,001	0,07	Sp.	133
134	IIIC 8 196	Flügelkopf m. Plinthe	Kr Abb.2	28,0	1,6	—	0,19	0,06	0,05	0,02	0,004	n.n.	0,04	0,0006	134
135	IIIC 7 653	Halbrunde Plakette, 3 Figuren	Lu T.43b	27,0	2,1	—	0,09	0,05	0,06	0,02	0,014	n.n.	0,06	0,0005	135
136a	IIIC 8 056	Platte, Reiter, Fuß rechts	Lu T.24	9,0	2,0	1,3	0,38	0,18	0,12	0,32	0,014	n.n.	0,08	0,0009	136a
136b	IIIC 8 056	Platte, Reiter, Kopf		7,0	1,3	0,7	0,22	0,16	0,07	0,20	0,009	n.n.	0,06	0,0006	136b
137a	IIIC 10 863	Rundfigur, Europäer m. Gewehr, Sockel	Lu T.71	25,0	0,9	Sp.	0,08	0,05	0,08	Sp.	0,026	0,002	0,05	Sp.	137a
137b	IIIC 10 863	Rundfigur, Europäer, m. Gewehr, Kopf		21,0	1,0	Sp.	0,10	0,04	0,06	Sp.	0,019	0,001	0,05	Sp.	137b
138	IIIC 9 947	Platte, Europäer m. Stab	Lu T.3e	3,4	4,4	3,1	0,10	0,35	0,14	0,56	0,010	n.n.	0,08	0,0010	138
139	IIIC 20 295	Stuhl m. Schlangen geschuppt	Lu Abb.813	29,0	2,3	Sp.	0,18	0,03	0,05	0,01	0,004	0,0007	0,04	0,0008	139
140a	IIIC 10 864	Weibl. Rundfigur, Sockel	Lu T.70	28,0	2,7	Sp.	0,12	0,07	0,06	0,01	0,014	0,0007	0,07	Sp.	140a
140b	IIIC 10 864	Weibl. Rundfigur, Kopf		22,0	2,0	Sp.	0,13	0,07	0,05	Sp.	0,012	0,0010	0,07	Sp.	140b
141	IIIC 10 884	Maske	Lu T.96e	13,0	4,2	0,6	0,30	0,21	0,07	0,26	0,009	0,0008	0,06	0,0010	141
142	IIIC 10 866	Anhänger, Tierkopf	Lu T.97e	13,0	2,4	0,05	0,24	0,08	0,08	0,05	0,015	0,0008	0,05	0,0009	142
143	IIIC 10 878	Kopf m. Schlangen u. Vögeln	Lu T.64	4,5	8,6	2,2	0,43	0,22	0,13	0,66	0,011	0,0010	0,07	0,0017	143
144	IIIC 12 514	Kopf	Lu T.65a, c	—	3,4	2,0	0,19	0,15	ca. 2,5	0,23	0,007	0,0010	0,03	0,0010	144

Analysen von Benin-Objekten

Lfd. Nr.	*Katalog Nr.*	*Gegenstand*	*Abbildung**	*% Zink*	*% Blei*	*% Zinn*	*% Eisen*	*% Nickel*	*% Arsen*	*% Antimon*	*% Wismut*	*% Kadmium*	*% Silber*	*% Gold*	*Lfd. Nr.*
145	IIIC 8 057	Weibl. Figur	Lu T.86b	14,5	2,7	0,4	0,24	0,19	0,06	0,12	Sp.	0,0007	0,04	0,0005	145
146	IIIC 8 080	Glocke	Lu T.94o	30,5	2,6	—	0,28	0,06	0,07	0,09	0,007	0,0007	0,05	Sp.	146
147	IIIC 20 300	ampelförm. Gefäß, Henkel	Lu Abb.652, 653	11,0	4,8	0,2	0,46	0,21	0,04	0,08	0,005	Sp.	0,04	Sp.	147
148	IIIC 8 329	Flasche m. Köpfen	Lu T.72b	—	0,4	9,3	0,10	0,04	0,30	0,08	0,005	0,0010	0,02	Sp.	148
149	IIIC 8 169	Kopf	Lu T.53	5,4	1,0	1,4	0,15	0,10	0,14	0,45	0,022	0,002	0,06	Sp.	149
150	IIIC 12 507	Kopf m. spitzer Haube	Lu T.51, 52b	2,0	0,8	2,2	0,10	0,06	0,12	0,19	0,005	0,001	0,06	0,0001	150
151	IIIC 10 877	Leopard, freistehend	Lu T.75	1,9	1,1	7,0	0,65	0,09	0,27	0,24	0,006	0,001	0,07	0,0004	151
152	IIIC 8 375	Platte, 3 Figuren	Lu T.12	13,0	8,4	0,5	0,50	0,16	0,03	0,47	0,013	0,0015	0,05	0,0010	152
153	IIIC 10 876	Glocke	Lu Abb.95c	—	0,4	6,6	0,10	<0,01	0,14	0,04	0,003	0,002	0,06	0,0007	153
154a	IIIC 8 511	Kanone, oben	Lu Abb.871, 873	3,0	1,6	1,2	0,35	0,09	0,07	0,23	0,015	0,0015	0,05	0,0008	154a
154b	IIIC 8 511	Kanone, Mitte		3,2	2,4	2,3	0,28	0,09	0,08	0,28	0,016	0,0015	0,05	0,0009	154b

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CU	PB	SN	AG	FE	SB	NI	AU	CO	AS	CD	BI	ZN
89.00	.3500	9.700	.0600	.1500	.3000	.0500			.3000			.3500
001	001	M,REG,1952,AF-11-1				STATUETTE			BENIN			
	+14,+16					HUNTER(BASE)						
88.50	.3000	9.000	.0500	.1800	.1500	.0400			.3500			.8000
002	001	M,REG,1952,AF-11-1				STATUETTE			BENIN			
	+14,+18					HUNTER(BODY)						
71.50	11.80	.8000	.0650	.7400	.2500	.0800			.5500		.0030	15.50
003	003	M,REG,1939,AF,34-1				STATUE			IFE			
	+16,+17					HEAD(NECK)						
70.00	10.80	.9500	.0950	.3400	.2000	.0350			.5000		.0020	17.40
004	003	M,REG,1939,AF,34-1				STATUE			IFE			
	+16,+17					HEAD(HEADDRESS)						
90.00	.5000	7.000	.0550	.0600	.5000	.0550			.5000		.0010	1.050
005	005	M,REG,97,12-17,3				STATUE			BENIN			
	+14,+16					HEAD OF KING(NECK)						
90.00	.7000	8.300	.0450	.1000	.2500	.0400			.4500		.0010	.5600
006	005	M,REG,97,12-17,3				STATUE			BENIN			
	+14,+16					HEAD OF KING(HAIR)						
88.00	1.900	5.200	.0500	.2500	1.500	.1000			.1500		.0030	3.600
007	005	M,REG,97,12-17,3				STATUE			BENIN			
	+14,+16					HEAD OF KING(PATCH)						
94.50	1.800	.9000	.0600	.3000	.9000	.1000			.2000		.0130	2.400
008	008	M,REG,1963,AF,9,1				STATUE			BENIN			
	+14,+16					HEAD(NECK)						
93.50	1.800	.9500	.0600	.3800	.4000	.0900			.2000		.0060	2.400
009	008	M,REG,1963,AF,9,1				STATUE			BENIN			
	+14,+16					HEAD(TOP)						
88.50	14.70	1.050	.0650	.4300	.5000	.1800			.1500		.0010	14.00
010	010	M,REG,1944,AF,4,11				STATUE			BENIN			
	+16,+17					MEMORIAL HEAD						
67.50	11.30	.9000	.0500	.5500	.8500	.1900			.1300		.0005	20.00
011	010	M,REG,1944,AF,4,11				STATUE			BENIN			
	+16,+17					HEAD(TOP)						

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CU	PB	SN	AG	FE	SB	NI	AU	CO	AS	CD	BI	ZN	
72.00	4.200	.4000	.0650	.7100	.1000	.1900			.1800		.0005	21.20	
012	012	M,REG,97,12-17,2				STATUE			BENIN				
+16,+17						HEAD(NECK)							
75.50	4.500	.5000	.0600	.7200	.4500	.1700			.0900		.0020	17.50	
013	012	M,REG,97,12-17,2				STATUE			BENIN				
+16,+17						HEAD(TOP)							
76.50	6.600	.4500	.0450	.4600	.2500	.1800			.0600		.0005	16.10	
014	0	M,REG,1903,10-22,4				STATUE			BENIN				
+16,+17						MEMORIAL HEAD(NECK)							
69.50	4.300		.0800	.1800	.0200	.0500			.1000		.0020	23.90	
015	0	M,REG,98,10-25,1				STATUE			BENIN				
+18,+19						HELMET MASK HEAD							
70.50	2.800		.0650	.1200	.0150	.2000			.1500		.0010	26.60	
015	016	M,REG,1944,AF,4-12				STATUE			BENIN				
+18,+19						HELMET MASK(NECK)							
70.00	4.100	.5000	.0900	.0950	.0700	.0700			.2500		.0040	25.80	
017	016	M,REG,1944,AF,4-12				STATUE			BENIN				
+18,+19						HELMET MASK(REPAIR)							
72.50	2.800		.0550	.1600		.1000			.2500		.0005	25.10	
018	016	M,REG,1944,AF,4-12				STATUE			BENIN				
+18,+19						HELMET MASK(SPOUT)							
81.50	5.700	2.400	.0500	.4000	.1500	.1700			.2500		.0005	8.400	
019	0	M,REG,1952,AF,30,1				STATUE			UDO				
						HEAD							
84.50	6.100	2.100	.0600	.4600	.1500	.1700			.1500		.0005	5.900	
020	020	M,REG,1948,AF,9,1				STATUE			BENIN				
+16,+19						HEAD(NECK)							
95.00	1.400	1.100	.0600	.2000	.4500	.1300			.1000		.0010	2.000	
021	020	M,REG,1948,AF,9,1				STATUE			BENIN				
+18,+19						HEAD(CHAPLET)							
85.00	3.600	1.100	.0500	.5500	.8000	.2000			.1500		.0010	7.200	
022	020	M,REG,1948,AF,9,1				STATUE			BENIN				
+16,+19						HEAD(CHAPLET)							

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CU	PB	SN	AG	FE	SB	NI	AU	CO	AS	CD	BI	ZN
66.50	2.800		.0600	.1300	.0600	.0700			.1500		.0020	29.50
023	0	M,REG,1944,AF,4,4				STATUE			BENIN			
	+18,+19					QUEEN MOTHER(BASE)						
74.50	2.300	.5000	.0650	.0700	.0500	.0600			.2400		.0010	22.00
024	0	M,REG,1944,AF,4,3				STATUE			BENIN			
	+18,+19					HEAD OF KING(NECK)						
66.50	.6500	.1500	.0300	.0600	.0100	.0600			.1000		.0020	32.50
025	0	M,REG,1944,AF,4,5				STATUE			BENIN			
	+18,+19					QUEEN MOTHER HEAD						
68.50	3.300	.1500	.0750	.2400	.0300	.0400			.0750		.0020	28.50
025	026	M,REG,1944,AF,4-2				STATUE			BENIN			
	+18,+19					MEMORIAL HEAD(NECK)						
70.00	2.800		.0500	.3300	.0300	.0300			.1000		.0005	27.80
027	026	M,REG,1944,AF,4-2				STATUE			BENIN			
	+18,+19					LARGE HEAD(TOP)						
78.00	.8000		.0600	.2400	.1000	.0400			.0600		.0020	20.50
028	026	M,REG,1944,AF,4-2				STATUE			BENIN			
	+18,+19					HEAD(REPAIR)						
69.50	3.300		.1000	.1500	.0500	.0400			.1000		.0030	27.00
029	0	M,REG,97,12-17,1				STATUE			BENIN			
	+18,+19					KINGS HEAD(BASE)						
69.00	1.700		.0350	.0700		.0200			.1000		.0010	28.20
030	030	M,REG,1944,AF,4-1				STATUE			BENIN			
	+18,+19					HEAD OF KING(NECK)						
68.50	3.000	.1000	.0600	.1200	.0400	.0300			.2000		.0020	27.30
031	030	M,REG,1944,AF,4-1				STATUE			BENIN			
	+15,+19					HEAD OF KING(2ND POURING)						
70.50	1.900	.2000	.0500	.0750		.0250			.3000		.0010	27.50
032	0	M,REG,1903,10-22,3				STATUE			BENIN			
	+18,+19					HEAD OF KING(NECK)						
65.50	.7000	.1000	.0300	.0500	.0100	.0500			.1500	.0100	.0020	33.00
033	0	M,REG,1961,AF,9-1				STATUE			BENIN			
	+18,+19					HEAD OF KING(NECK)						

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CU	PB	SN	AG	FE	SB	NI	AU	CO	AS	CD	BI	ZN
65.00	3.900	.1000	.0700	.0500		.0550			.2500		.0020	31.00
045	044	M,REG,1944,AF4-7				STATUE			BENIN			
	+16,+17					MUSKETEER(MUSKET)						
73.00	8.800	.4000	.0450	.6300	.0500	.1600			.1000		.0005	17.00
046	0	M,REG,1944,AF.4,13				STATUETTE			BENIN			
	+16,+17					MOUNTED WARRIOR(BASE)						
69.00	2.200	.2500	.0500	.1500		.0250			.2000		.0030	27.50
047	047	M,REG,98,1-15,8				STATUETTE			BENIN			
	+19,+19					STANDING MALE(BASE)						
69.00	2.800		.0100	.1500		.0250			.4000		.0200	27.00
048	047	M,REG,98,1-15,8				SATUETTE			BENIN			
	+18,+19					STANDING MALE(CAST ON)						
72.00	12.00	1.900	.0700	.5300	.7000	.2400		.0100	.3500		.0030	13.60
049	0	M,REG,1949,AF,38,1				STATUETTE			BENIN			
	+16,+17					LEOPARD AQUAMANILE(FOOT)						
92.50	3.100	.3000	.0500	.1200	.2000	.1000			.2500		.0050	3.300
050	050	M,REG,1911,6-20,1				STATUETTE			BENIN			
	+16,+17					LEOPARD AQUAMANILE(FOOT)						
71.00	9.600	.3000	.0450	.4200	.4000	.2200			.0700		.0005	18.20
051	050	M,REG,1911,6-20,1				STATUETTE			BENIN			
	+16,+17					LEOPARD AQUAMANILE(PLUGS)						
77.00	7.600	.7000	.0500	.4400	.3000	.2000			.1500		.0010	13.40
052	0	M,REG,1923,10-13,1				STATUETTE			BENIN			
	+16,+17					MUD FISH STOOL(BASE)						
69.00	2.600		.0450	.1500		.0600		.0200	.1000		.0010	27.00
053	0	M,REG,97,10-11,2				GEN, METALWORK			BENIN			
	+16,+19					DRUM ALTARPIECE(BASE)						
82.00	3.100	3.600	.0650	.2500	.1500	.1100			.2500		.0030	10.80
054	0	M,REG,98,10-25,2				STATUE			BENIN			
	+18,+19					COCKEREL(BASE)						
78.50	8.200	3.200	.1000	.3400	.2000	.2900		.0070	.6000		.0010	7.200
055	055	M,REG,97,550				GEN, METALWORK			BENIN			
	+18,+19					STANDING RING(FOOT)						

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CU	PB	SN	AG	FE	SB	NI	AU	CO	AS	CD	BI	ZN	
92.50	.5000		.1000	.0300	.0500	.0450			.3500		.0010	5.000	
056	055	M,REG,97,550				GEN, METALWORK			BENIN				
	+16,+19					STANDING RING(FIGURE)							
71.50	3.300		.0600	.1500	.0400	.0850			.4500		.0005	24.00	
057	057	M,REG,1944,AF,4,21				GEN, METALWORK			BENIN				
	+18,+19					BATON(CUP)							
69.50	3.100		.0600	.1200	.0700	.0800			.3000			26.50	
058	057	M,REG,1944,AF,4,21				GEN, METALWORK			BENIN				
	+18,+19					BATON(LID)							
69.50	1.600		.0350	.0950	.0100	.0200		.0020	.0500	.0040	.0010	27.00	
059	0	M,REG,1964,AF,3,1				STATUE			BENIN				
	+18,+19					PYTHON HEAD(HEAD)							
97.50	.1500		.0700	.0200	.1500	.0600			2.100	.0030	.0010	.3000	
060	059	M,REG,1964,AF3-1				STATUE			BENIN				
	+18,+19					PYTHON HEAD(RIVET)							
77.00	2.200	.7000	.0600	.6500	.4000	.2500		.0100	.2500		.0010	18.50	
061	061	M,REG,98,1-15,17				DECORATIVE			BENIN				
						ARMLET(BRASS)							
99.50	.4000		.0150	.0050	.1500	.1600			.1500		.0005	.0500	
062	061	M,REG,98,1-15,17				DECORATIVE			BENIN				
						ARMLET(COPPER REPAIR)							
91.00	1.100		.0300	.0400	.0200	.0200			.0400			6.500	
063	063	M,REG,1949,AF46,164				DECORATIVE			BENIN				
	+18,+19					SPIRAL BRACELET(COPPER TERMINAL)							
67.00	4.000		.0700	.1700		.0400		.0100	.0800		.0005	27.80	
064	063	M,REG,1949,AF-46,164				DECORATIVE			BENIN				
	+18,+19					BRACELET(BRASS TERMINAL)							
80.00	3.900	.8000	.0400	.6800	1.500	1.250		.0100	.5500			12.80	
065	065	M,REG,98,1-15,27				PLAQUE			BENIN				
	+16,+17					KING WITH 2 CHIEFS(MAIN CASTING)							
83.00	3.900	1.200	.0500	.9000	2.000	.9000		.0060	.3500		.0005	9.600	
066	065	M,REG,98,1-15,27				PLAQUE			BENIN				
	+16,+17					KING WITH 2 CHIEFS(CAST ON)							

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CU	PB	SN	AG	FE	SB	NI	AU	CO	AS	CD	BI	ZN
92.00	1.500	2.600	.0700	.1000	.2500	.0850			.2000		.0010	4.500
067	0	M,REG,97.10-11.1				STATUE			BENIN			
	+16,+17					QUEEN MOTHER'S HEAD						
77.50	7.400	.5000	.0400	.3900	.1500	.2700		.0040	.1500		.0005	13.00
068	068	M,REG,98.1-15,40				PLAQUE			BENIN			
	+16,+17					TWO CHIEFS & LEOPARD(MAIN CASTING)						
79.00	7.000	.3000	.0500	.4300	.1500	.2000		.0050	.0700		.0005	14.20
069	068	M,REG,98.1-15,40				PLAQUE			BENIN			
	+16,+17					TWO CHIEFS & LEOPARD(CAST ON)						
83.00	4.800	3.800	.0450	.3200	.3500	.1700			.1700		.0005	7.200
070	0	M,REG,98.1-15,45				PLAQUE			BENIN			
	+16,+17					EQUESTRIAN CHIEF						
78.50	4.100	.6500	.0500	.6500	1.400	1.300		.0100	.5000		.0005	14.00
071	0	M,REG,98.1-15,117				PLAQUE			BENIN			
	+16,+17					3 CHIEFS W. BIRDS OF DISASTER						
76.50	6.500	.3000	.0400	.4500	.3000	.2700			.2000		.0005	14.50
072	0	M,REG,98.1-15,111				PLAQUE			BENIN			
	+16,+17					FOUR PORTUGESE						
83.00	2.000	.7000	.0650	.4000	.2000	.1300			.0700		.0005	13.40
073	0	M,REG,98.1-15,172				PLAQUE			BENIN			
	+16,+17					CROCODILE						
79.00	6.500	.4000	.0400	.4200	.3600	.2000			.1300		.0005	11.80
074	0	M,REG,98.1-15,30				PLAQUE			BENIN			
	+16,+17					KING AND 2 LEOPARDS						
72.50	12.50	.7000	.0450	.7100	.8000	.3700		.0060	.3500		.0005	10.50
075	075	M,REG,98,1-15,34				PLAQUE			BENIN			
	+16,+17					KING WITH 2 CHIEFS(MAIN CASTING)						
98.50	.8500	.2020	.0800	.0600	1.500	.1700			.3000		.0150	.4000
076	075	M,REG,98.1-15,34				PLAQUE			BENIN			
	+16,+17					KING + 2 CHIEFS(BOSS)						
77.00	8.300	1.600	.0800	.5800	1.600	1.200		.0080	.3500		.0010	11.00
077	077	M,REG,98.1-15,15				PLAQUE			BENIN			
	+16,+17					CHIEF & 2 SUPPORTERS(MAIN CASTING)						

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CU	PB	SN	AG	FE	SB	NI	AU	CO	AS	CD	BI	ZN	
74.50	9.900	2.000	.0650	.6000	1.000	.5100		.0100	.3500		.0020	9.300	
078	077	M.REG.98.1-15.15				PLAQUE			BENIN				
+16.+17						CHIEF & 2 SUPPORTERS(CAST ON)							
81.50	3.200	4.000	.0700	.3300	.2500	.1600		.0020	.3000		.0020	11.00	
079	0	M.REG.98.1-15.11				PLAQUE			BENIN				
+16.+17						PORTUGESE + DOG							
86.00	4.300	3.600	.0650	.2900	.3000	.2400		.0020	.3000		.0020	5.300	
080	0	M.REG.98.1-15.9				PLAQUE			BENIN				
+16.+17						PORTUGESE HEADS							
89.00	3.000	5.300	.0600	.1800	.2000	.2000			.2000		.0005	2.300	
081	0	M.REG.98.1-15.8				PLAQUE			BENIN				
+16.+17						PORTUGESE HEAD							
67.00	9.600	.7000	.0300	.6300	.2000	.2300			.1500		.0005	22.50	
082	082	M.REG.98.1-15.4				PLAQUE			BENIN				
+16.+17						PORTUGESE(MAIN CASTING)							
79.50	6.200	1.000	.0450	.9500	.8000	.2000			.2000			11.00	
083	082	M.REG.98.1-15.4				PLAQUE			BENIN				
+16.+17						PORTUGESE(CAST ON)							
74.00	11.00	1.000	.0500	1.000	.6000	.4500		.0120	.4000		.0010	11.00	
084	0	M.REG.98.1-15.2				PLAQUE			BENIN				
+16.+17						PORTUGESE							
74.00	6.200	.5000	.0350	.4000	.0500	.2000			.1500		.0005	17.20	
085	0	M.REG.98.1-15.1				PLAQUE			BENIN				
+16.+17						3 PORTUGESE							
80.00	2.200	.7000	.0650	.4900	.0500	.1600			.1500		.0005	17.50	
086	0	M.REG.98.1-15.97				PLAQUE			BENIN				
+16.+17						SCABBARD							
69.50	11.00	.3000	.0450	.5000	.5000	.2300		.0060	.1000		.0005	18.00	
087	0	M.REG.98.1-15.44				PLAQUE			BENIN				
+16.+17						KING AND 2 CHIEFS							
73.00	12.00	.8000	.0500	.7000	1.100	.4400			.2000		.0020	11.00	
088	0	M.REG.98.1-15.36				PLAQUE			BENIN				
+16.+17						PLAQUE							

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CU	PB	SN	AG	FE	SB	NI	AU	CO	AS	CD	BI	ZN
75.50	12.00	.9000	.0550	.6000	.6500	.4200		.0100	.3000		.0005	9.300
069	0	M,REG,98,1-15,35				PLAQUE			BENIN			
	+16,+17					WARRIOR						
75.50	2.400	.9000	.0500	.5000	.6000	.1600			.1500			20.00
090	0	M,REG,98,1-15,170				PLAQUE			BENIN			
	+16,+17					2 COSTUME MASKS						
82.00	3.800	1.400	.0600	.5500	.6000	.2000			.2000		.0010	11.20
091	091	M,REG,98,1-15,174				PLAQUE			BENIN			
	+16,+17					TREE(MAIN CASTING)						
80.50	4.400	2.400	.0600	.6000	.1500	.2000			.2000		.0005	10.50
092	091	M,REG,98,1-15,174				PLAQUE			BENIN			
	+16,+17					TREE(ATTACHED FRUIT)						
78.00	2.200	.7000	.0800	.7000	.0700	.1700		.0050	.1000		.0010	17.20
093	0	M,REG,98,1-15,38				PLAQUE			BENIN			
	+16,+17					CHIEF AND 2 RETAINERS						
83.00	4.600	2.400	.0600	.5300	1.000	.3000		.0100	.3000		.0010	7.400
094	0	M,REG,98,1-15,47				PLAQUE			BENIN			
	+16,+17					EQUESTRIAN PRISONERS						
70.00	12.00		.0200	.5000	.1000	.1300			.1000		.0020	16.40
095	095	M,REG,98,1-15,26				PLAQUE			BENIN			
	+16,+17					KING + 2 CHIEFS						
97.00	.5000	.7000	.0500	.0400	.3000	.0450			.2500		.0030	.6000
096	095	M,REG,98,1-15,26				PLAQUE			BENIN			
	+16,+17					PLAQUE(RIVET)						
77.00	3.500	.8000	.0400	.6700	1.900	1.750			.7000			14.10
097	0	M,REG,98,1-15,23				PLAQUE			BENIN			
	+16,+17					SEATED KING						
89.50	2.400	3.900	.0600	.2000	.3000	.1600			.2500		.0010	2.400
098	0	M,REG,98,1-15,17				PLAQUE			BENIN			
	+16,+17					COURTIER						
84.00	5.300	4.300	.0500	.3000	1.300	.2000		.0100	.3500		.0020	4.900
099	0	M,REG,98,1-15,74				PLAQUE			BENIN			
	+15,+17					CHIEF						

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CU	PB	SN	AG	FE	SB	NI	AU	CO	AS	CD	BI	ZN	
74.50	2.300	.6000	.0350	.5800	.0500	.2000			.0600		.0005	21.00	
100	100	M,REG,98,1-15,143				PLAQUE			BENIN				
+16,+17						CHIEF(MAIN CASTING)							
74.00	2.100	1.000	.0500	.4000	.2000	.2000			.1500			21.50	
101	100	M,REG,98,1-15,143				PLAQUE			BENIN				
+16,+17						CHIEF(CAST ON)							
75.00	8.800	.5000	.0350	.5500	.1500	.1000			.1000		.0010	14.00	
102	0	M,REG,98,1-15,80				PLAQUE			BENIN				
+16,+17						LEOPARD CATCHERS							
85.50	9.400	1.300	.0600	.1700	.6000	.2300		.0100	.3500		.0020	2.800	
103	0	M,CAT,98,1-15,83				PLAQUE			BENIN				
+16,+17						2 CHIEFS							
88.50	3.700	6.300	.0650	.1500	.2500	.1800		.0050	.2000		.0020	1.800	
104	0	M,REG,98,1-15,189				PLAQUE			BENIN				
+16,+17						5 MUDFISH							
91.00	1.700	1.200	.0700	.4500	.1300	.1300			.2000		.0010	4.200	
105	105	M,REG,98,1-15,200				PLAQUE			BENIN				
+16,+17						LEOPARD + GOAT(MAIN CASTING)							
92.50	1.500	1.400	.0800	.2800	.2000	.1300			.1500		.0020	3.400	
106	105	M,REG,98,1-15,200				PLAQUE			BENIN				
+16,+17						LEOPARD + GOAT(CAST ON)							
85.00	4.300	5.100	.0700	.2600	.6000	.4500		.0050	.3500		.0010	4.100	
107	0	M,REG,98,1-15,203				PLAQUE			BENIN				
+16,+17						PYTHON							
81.50	3.600	2.800	.0750	.3700	.2000	.2000		.0070	.1500		.0010	11.70	
108	108	M,REG,1900,7-20,2				PLAQUE			BENIN				
+18,+19						2 KINGS(MAIN CASTING)							
77.50	5.200	1.400	.0500	.4800	.1000	.2000			.1200		.0005	15.00	
109	108	M,REG,1900,7-20,2				PLAQUE			BENIN				
+18,+19						2 KINGS(CAST ON)							
70.50	13.00	.5000	.0350	.3500	.2000	.1100			.1000		.0005	16.80	
110	0	M,REG,1903,10-22,6				PLAQUE			BENIN				
+17,+18						CHIEF WITH 2 MUSICIANS							

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CU	PB	SN	AG	FE	SB	NI	AU	CO	AS	CD	BI	ZN
91.00	2.100	2.700	.0700	.3300	.2000	.1900			.2000		.0010	4.100
111	111	M,REG,1961,AF,18,1				PLAQUE			BENIN			
+16,+17						MUSICIAN(MAIN CASTING)						
93.00	1.400	1.000	.0500	.2500	.1500	.1400			.1500			3.800
112	111	M,REG,1961,AF,18,1				PLAQUE			BENIN			
+16,+17						MUSICIAN(CAST ON)						
82.00	1.800	2.600	.0800	.0900	.0500	.1500			.2000		.0010	14.30
113	@	M,REG,98,1-15,77				PLAQUE			BENIN			
+16,+17						3 TRADERS + MANILLAS						
69.00	3.100	.3000	.0650	.1500		.0250			.1000		.0030	27.00
114	@	M,73				PLAQUE			BENIN			
+18,+19						KING WITH MUDFISH						
89.50	3.600	2.100	.0450	.1200	.2500	.1700			.2000		.0020	3.400
115	@	M,REG,1944,AF4,10				PLAQUE			BENIN			
+16,+17						PORTUGESE						
63.00	.8500	.3500	.0200	.0700		.0300			.0500	.0200	.0010	34.50
116	@	M,REG,99,6-10,2				PLAQUE			BENIN			
+19						2 KINGS						
81.50	4.100	1.800	.0600	.4400	.1000	.2000			.2000		.0010	10.30
117	117	M,REG,98,1-1,171				PLAQUE			BENIN			
+16,+17						4 LEOPARDS(MAIN CASTING)						
95.00	2.000	1.000	.0750	.1000	.8000	.0600			.3000		.0030	1.300
118	117	M,REG,98,1-1,171				PLAQUE			BENIN			
+16,+17						4 LEOPARDS(CHAPLET)						
85.00	4.000	2.200	.0650	.5200	.8000	.5000		.0050	.4000		.0010	6.000
119	@	M,REG,98,1-15,153				PLAQUE			BENIN			
+16,+17						CHIEF						
88.50	2.700	5.500	.0500	.2500	.2000	.1500		.0020	.2500		.0005	1.800
120	@	M,REG,98,1-15,12				PLAQUE			BENIN			
+16,+17						PORTUGESE MUSKETEERS						
81.50	7.200	.7000	.0500	.4500	.4000	.2000		.0050	.1500			9.700
121	@	M,REG,98,1-15,20				PLAQUE			BENIN			
+16,+17						2 PORTUGESE + CHIEF						

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CU	PB	SN	AG	FE	SB	NI	AU	CO	AS	CD	BI	ZN	
71.00	15.20	1.800	.0800	.5200	.5000	.2400		.0150	.4000		.0010	11.00	
122	0	M,REG,98,1-15,21			PLAQUE			BENIN					
+16,+17					CHIEF + OTHERS								
78.00	8.300	.8000	.0400	.4000	.1000	.2500		.0070	.1500			12.30	
123	0	M,REG,98,1-15,22			PLAQUE			BENIN					
+16,+17					2 MUSICIANS + CHIEF								
81.00	6.200	.7000	.0500	.4500	.0500	.2300		.0100	.1500			11.40	
124	0	M,REG,98,1-15,28			PLAQUE			BENIN					
+16,+17					KING + 2 CHIEFS								
70.50	5.000	1.000	.0450	.4200	.0800	.2400			.1500		.0005	17.00	
125	0	M,REG,98,1-15,29			PLAQUE			BENIN					
+16,+17					KING + 2 CHIEFS								
86.00	5.500	4.000	.0600	.3800	.5000	.2600			.3000		.0010	4.100	
126	126	M,REG,1913,12-11,1			PLAQUE			BENIN					
+16,+17					COW SACRIFICE(MAIN CASTING)								
77.00	13.10	4.400	.1000	.3700	.6000	.1900		.0020	.3700		.0020	4.200	
127	126	M,REG,1913,12-11,1			PLAQUE			BENIN					
+16,+17					COW SACRIFICE(CAST ON)								
83.50	2.900	1.100	.0700	.4000	.1000	.1800			.1000		.0005	11.20	
128	128	M,REG,98,1-15,46			PLAQUE			BENIN					
+16,+17					4 GUARDS(CAST ON)								
93.50	1.700	1.000	.0700	.2000	.1500	.1300			.3000		.0020	3.200	
129	128	M,REG,98,1-15,46			PLAQUE			BENIN					
+16,+17					4 GUARDS(MAIN CASTING)								
82.00	3.300	4.900	.0750	.4000	.3000	.1100		.0040	.1200		.0010	8.900	
130	0	M,REG,98,1-15,31			PLAQUE			BENIN					
+16,+17					KING + 2 LEOPARDS								
80.00	4.500	1.100	.0800	.5200	.1500	.0800		.0050	.1500		.0020	14.00	
131	0	M,REG,98,1-15,39			PLAQUE			BENIN					
+16,+17					CHIEF + 4 OTHERS								
84.00	6.600	2.400	.0950	.4600	.8000	.3700			.2500		.0010	5.400	
132	0	M,REG,98,1-15,48			PLAQUE			BENIN					
+16,+17					BATTLE SCENE								

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CU	PB	SN	AG	FE	SB	NI	AU	CO	AS	CD	BI	ZN
81.00	7.000	1.800	.0700	.4000	.8000	.5400		.0020	.3000		.0010	8.600
133	0	M,REG,98,1-15,49				PLAQUE			BENIN			
	+16,+17					BATTLE SCENE						
70.50	2.200	.6000	.0900	1.850	.5000	.0500		.0030	.1200		.0005	24.50
134	134	M,REG,1947,AF18,40				GEN, METALWORK			BENIN			
	+18,+19					COSTUME MASK(MAIN CASTING)						
99.50	.2000		.0600	.0200	.1000	.0350			.0500		.0010	.1500
135	134	M,REG,1947,AF18,40				GEN, METALWORK			BENIN			
	+18,+19					MASK(COLLAR ORNAMENT)						
72.50	2.200	.2000	.0900	1.500	.3500	.0500			.1200		.0005	20.50
136	134	M,REG,1947,AF18,40				GEN, METALWORK			BENIN			
	+18,+19					COSTUME MASK(COLLAR ORNAMENT)						
74.00	11.20	1.300	.0500	.4000	.6000	.2800			.2000		.0010	11.60
137	0	M,REG,1962,AF,26,3				GEN, METALWORK			BENIN			
	+14,+15					COSTUME MASK						
75.50	2.400	.4000	.0700	.8000	.0500	.0500		.0700	.1500		.0020	20.50
138	0	M,REG,AF18,41				GEN, METALWORK			BENIN			
	+18,+19					COSTUME MASK						
73.00	8.100	.4000	.0400	.3800	.3000	.2400			.2500			18.00
139	0	M,REG,97,12-17,4				GEN, METALWORK			BENIN			
	+16,+17					COSTUME MASK						
67.50	3.000	.2000	.0650	.1700	.0300	.0300			.1500		.0050	29.50
140	0	M,REG,1941 AF,2,1				DECORATIVE			BENIN			
	+18,+19					BATON						
68.50	2.900	.2000	.0500	.1700	.0100	.0350			.1300		.0020	28.50
141	141	M,REG,1959,AF4-1				DECORATIVE			BENIN			
	+18,+19					FINIAL(SHAFT)						
69.00	3.200		.0500	.2000	.0200	.0400			.2500		.0040	26.50
142	141	M,REG,1959,AF4-1				DECORATIVE			BENIN			
	+18,+19					FINIAL(POINT)						
87.50	.1500	11.50	.0300	.1500	.4500	.0200			.2500		.0030	
143	0	M,REG,1909,8-11,3				MUSIC INSTRUMENT			BENIN			
	+18,+19					BELL						

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CU	PB	SN	AG	FE	SB	NI	AU	CO	AS	CD	BI	ZN	
97.50	.4000		.0700	.1000	1.000	.0900			.1200		.0900		
144	0	M,REG,1905,4-13,62				STATUETTE			BENIN				
	+18,+19					LEOPARDS SKULL							
88.00	3.800	5.000	.0700	.3500	.3000	.0400			2.200		.0080	.5000	
145	0	1949,AF7-7				MUSIC INSTRUMENT			BENIN				
	+18,+19					BELL							
99.00	.2500		.1100	.0150	.6000	.0150			.0500		.0020	.8000	
146	146	M,REG,1944,AF4-40				DECORATIVE			BENIN				
						BRACELET(COPPER TWIST)							
80.00	3.200		.0350	.5000	.2000	.2500			.0800		.0020	16.70	
147	146	M,REG,1944,AF4-40				DECORATIVE			BENIN				
						BRACELET(BRASS HEAD)							
85.00	6.300	7.500	.2000	.4500	.1000	.1500			.1000		.0010		
148	0	M,REG,1956,AF15-6				DECORATIVE			IBO				
	+10,+11					NECKLACE ORNAMENT							
99.00	.4000		.1800	.0300	.0700	.1000			.0100				
149	0	M,REG,1956,AF15-6				DECORATIVE			IBO				
	+10,+11					WIRE COIL ORNAMENT							
98.50	.3500		.3100	.0300	.2500	.1900			.1600				
150	0	M,REG,1956,AF15-6				DECORATIVE			IBO				
	+10,+11					SPIRAL SNAKE							
99.00	.3000		.2300	.0200	.0200	.0900			.0050				
151	0	M,REG,1956,AF15-6				DECORATIVE			IBO				
	+10,+11					TWISTED BRACELET							
99.20	.3000		.2100	.1500	.0250	.0900			.0100				
152	0	M,REG,1956,AF15-6				DECORATIVE			IBO				
	+10,+11					BANGLE							
97.00	1.100	.5000	.7500	.0600		.0500			.0100		.0010		
153	0	M,REG,1956,AF15-6				DECORATIVE			IBO				
	+10,+11					COPPER SPIRAL							
88.00	3.200	7.600	.3800	.0600	.0500	.0800			.1000		.0030		
154	0	M,REG,1956,AF15-6				DECORATIVE			IBO				
	+10,+11					CYLINDER COIL							

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CU	PB	SN	AG	FE	SB	NI	AU	CO	AS	CD	BI	ZN
79.00	9.500	9.000	.2500	.0800	.0500	.0800			.1000		.0010	
155	0	M.REG.1956.AF15-6				DECORATIVE			IBO			
	+10.+11					COPPER BRACELET						
83.00	10.50	6.000	.2200	.1200	.0500	.0800			.2000		.0030	
156	0	M.REG.1956.AF15-6				DECORATIVE			IBO			
	+10.+11					NECKLACE ORNAMENT						
72.00	2.400		.0650		.0500	.0350			.3000		.0300	24.50
157	047	M.REG.98,1-15.8				STATUETTE			BENIN			
	+18.+19					STANDING MALE(CREST)						

British Museum Sampling and Analyses Techniques

The majority of the uncorroded metalwork was sampled using a portable jeweller's drill with a size 60 (1 mm. diameter) hardened steel bit. Previous experimentation has shown no measurable contamination from the bit, an important consideration in the samples which have a high iron content. The first surface drillings containing surface corrosion were discarded and from two to thirty milligrammes of bright metal turnings were collected. Even with this precaution, the collected drillings often contained both metal turnings and corrosion, and in order to obtain a satisfactory sample individual clean metal turnings had sometimes to be picked out of the mixture with a needle while being viewed under a low power microscope. This was a tedious process and it took about half an hour to obtain two milligrames of drillings. Where an object was too small or corroded to be satisfactorily drilled, samples were taken by scraping off the corroded surface to expose clean metal and then peeling off turnings of metal with a steel scalpel. This method of sampling does rather more visual damage than a single drill hole but does ensure a clean sample even from very small objects. Despite these precautions some of the analyses do not total loo percent and this is certainlz due to internal corrosion in the metal. The sample weights varied from about 1-30 milligrammes. This poses problems of comparability amongst the samples, clearly the 30 milligramme sample having a thirty times better detection limit than a 1 milligramme sample. These are of course, extreme examples and the normal detection limits quoted are based on samples of 5 milligrammes or more dissolved in acid made up to 20 millilitres. Sample weights below 5 milligrammes were dissolved with less acid and made up to only 10 instead of the normal 20 millilitres; thus all samples of 2.5 milligrammes or over have a uniform detection limit. Two of the samples weighed less than this limit and have been marked with an asterisk. The detection limit for these samples is approximately twice as high as that stated for the rest. The general detection limit for each element is better than 0.01 percent in the metal. The standard deviation is $\pm$ 1 percent for the major elements and $\pm$ 30 percent for the trace elements

(i.e. those below 0.2 percent in the metal). This may seem a rather pessimistic estimate of the precision especially for the trace elements but recent interlaboratory comparisons (Chase !974) showed serious discrpancies between laboratories working on the same samples,especially amongst the trace elements.

The samples were analysed by Atomic Absorption Spectrometry using flame methods for all elements except arsenic,antimony and bismuth which were determined using a graphite furnace attachment for increased sensitivity. The precise details of the methodology have been given in Hughes et al (1976) and departures from these methods have been given above.

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Appendix 3

Thermoluminescence Data on the Benin Heads

British Museum Ref.No.		Illustrations
1903.10-22.1 (horn player)	A.D. 1590±55	Dark 1973,pl.44,ill.95
1949 Af.46.155	A.D. 1735±20	
1944 Af.4.2 (type 4)	A.D. 1737±30	Dark 1973,pl.26,ill.55
1903.10-22.4 (type 3)	A.D. 1532±60	Foreman and Dark 1960, pls.71,72
1944 Af.4.1 (type 5)	A.D. 1817±15	Fagg 1963,15
1948 Af.9.1	A.D. 1682±35	Foreman and Dark 1960, pls79,80
1897.12-17.2 (type 3)	A.D. 1682±30	Foreman and Dark 1960, pl.68

Appendix 4

Index of the British Museum wallplaque collection

Plaque registration number	Photograph Reference	Weight Kg	Height Cm	Width Cm	Depth of Rim Cm
97. 6-19. 1		5.9	40.0	18.0	NR
98. 1-15. 1	R + D 12/1	3.9	40.0	18.0	NR
98. 1-15. 2	BM 11939				
	R + D 12/2	7.4	38.5	35.5	1.9
98. 1-15. 3	BM 11940				
	R + D 12/3	2.6	43.0	17.5	NR
98. 1-15. 4	R + D 12/4	4.5	43.0	31.0	1.9
98. 1-15. 5	R + D 12/5	14.5	50.5	38.0	2.4
98. 1-15. 6	BM 11941				
	R + D 12/6	3.0	37.5	19.5	NR
98. 1-15. 7	BM 11942				
	R + D 13/1	2.2	42.0	19.5	NR
98. 1-15. 8	BM 11943				
	R + D 13/2	3.6	41.5	14.5	NR
98. 1-15. 9	BM 11944				
	R + D 13/3	2.5	41.0	18.0	NR
98. 1-15. 10	R + D 14/1	6.7	45.5	29.0	1.3
98. 1-15. 11	R + D 13/5	2.8	40.5	16.5	NR
98. 1-15. 12	BM 12164				
	R + D 13/6	16.3	46.0	32.5	2.4
98. 1-15. 13	R + D 13/4	4.3	40.0	19.5	NR
98. 1-15. 15	R + D 15/2	5.3	41.5	23.0	NR
98. 1-15. 16	BM 11945				
	R + D 15/3	13.6	47.0	32.0	2.2
98. 1-15. 17	R + D 15/4	8.4	50.5	33.5	2.2
98. 1-15. 18	BM 11946				
	R + D 15/5	12.4	54.5	37.0	1.9
98. 1-15. 20	BM 11947				
	R + D 16/1	5.9	43.5	31.5	1.8
98. 1-15. 21	BM 12165				
	R + D 16/2	12.7	43.5	39.5	1.8
98. 1-15. 22		5.1	38.0	31.5	2.2
98. 1-15. 23	R + D 16/4	14.1	42.5	37.5	2.2
98. 1-15. 26	BM 11948				
	R + D 17/5	20.0	44.0	38.0	NR
98. 1-15. 27	R + D 16/5	11.6	46.0	32.5	1.8
98. 1-15. 28		11.2	46.0	38.5	2.2
98. 1-15. 29	BM 11949				
	R + D 17/4	8.9	46.0	36.5	2.2
98. 1-15. 30	BM 12166				
	R + D 17/1				
98. 1-15. 31	BM 11950				
	R + D 17/2	9.3	47.0	32.5	2.4
98. 1-15. 32	R + D 17/3	3.0	43.5	18.5	2.4
98. 1-15. 33	R + D 26/4	4.5	45.5	16.5	NR
98. 1-15. 34	BM 12167				
	R + D 18/3	5.9	41.5	36.5	1.5

Plaque registration number	Photograph Reference	Weight Kg	Height Cm	Width Cm	Depth of Rim Cm
98. 1-15. 35	R + D 18/2	5.7	39.5	36.0	NR
98. 1-15. 36	BM 11951				
	R + D 18/1	8.4	42.5	36.0	NR
98. 1-15. 38	BM 11952				
	R + D 24/5	13.6	50.0	37.0	6.7
98. 1-15. 39	R + D 18/4	14.2	46.5	39.5	
98. 1-15. 40		10.4	47.5	38.0	2.3
98. 1-15. 41	BM. 11953	7.9	41.5	33.0	2.3
98. 1-15. 42	BM 11954				
	R + D 18/5	9.7	48.5	36.0	2.4
98. 1-15. 44	R + D 14/4	9.1	42.5	36.5	1.8
98. 1-15. 45	BM 11955				
	R + D 19/2	11.4	45.0	33.5	2.5
98. 1-15. 46	BM 12168				
	R + D 19/3				
98. 1-15. 47	BM 11956				
	R + D 19/5	6.4	43.0	20.0	NR
98. 1-15. 48	R + D 19/4	11.0	41.5	39.0	2.2
98. 1-15. 49	BM 12169				
	R + D 19/6	9.2	39.5	38.5	2.2
98. 1-15. 50	BM 11957				
	R+ D 22/3	12.0	43.0	38.5	1.4
98. 1-15. 51	R + D 18/6	11.8	46.5	37.0	1.8
98. 1-15. 52	R + D 22/1	16.1	40	39.5	NR
98. 1-15. 53	R + D 23/5	8.7	49.5	35.5	2.4
98. 1-15. 54	R + D 23/1	11.6	37.0	35.5	1.9
98. 1-15. 55	R + D 22/5	15.1	36.5	36.0	1.4
98. 1-15. 56	BM 11958	4.6	38.5	18.0	NR
98. 1-15. 58	R + D 22/2	10.5	45.0	31.0	1.7
98. 1-15. 59	BM 11959				
	R + D 21/5	8.8	47.0	31.0	2.8
98. 1-15. 60	R + D 15/3		47.0	32.0	2.2
98. 1-15. 61		6.8	45.5	31.0	1.8
98. 1-15. 63	BM 11960				
	R + D 29/6	16.7	51.5	38.5	2.4
98. 1-15. 64	R + D 21/3	13.7	53.0	35.5	2.3
98. 1-15. 65		9.8	41.5	36.5	1.9
98. 1-15. 66	BM 11961				
	R + D 26/3	3.9	44.5	16.5	NR
98. 1-15. 68	R + D 25/1	12.5	43.5	33.5	2.0
98. 1-15. 69	BM 11962				
	R + D 30/4	3.4	40.5	19.0	NR
98. 1-15. 70	R + D 21/4	25.7	51.5	37.0	1.7
98. 1-15. 71	BM 11963	9.7	49.0	32.5	2.1
98. 1-15. 72	BM 11964				
	R + D 26/2	4.7	43.5	19.0	NR
98. 1-15. 73	BM 11965				
	R + D 27/1	12.8	44.5	32.5	1.8
98. 1-15. 74	BM 11966				
	R + D 26/1	4.8	46.5	16.5	NR
98. 1-15. 75	R + D 25/4	11.9	51.0	33.0	2.2
98. 1-15. 76	R + D 24/1	10.3	48.0	33.0	1.9
98. 1-15. 77	BM 11967				
	R + D 21	11.0	43.0	35.5	1.8

Plaque registration number	Photograph Reference	Weight KG	Height Cm	Width Cm	Depth of Rim Cm
98. 1-15. 78	R + D 21/1	10.0	47.5	33.5	2.2
98. 1-15. 79	BM 11968				
	R + D 20/5	9.6	48.5	38.0	2.8
98. 1-15. 80	BM 11969				
	R + D 14/2	15.0	49.5	33.5	2.2
98. 1-15. 81	R + D 20/6	14.5	54.5	35.5	1.9
98. 1-15. 83	R + D 20/2	13.7	48.0	32.5	2.4
98. 1-15. 84	BM 11970	5.6	44.5	19.5	NR
98. 1-15. 85	R + D 23/4	23.0	52.5	39.0	1.8
98. 1-15. 86	R + D 19/1	17.2	54.0	40.0	1.8
98. 1-15. 87		10.7	41.5	33.0	2.3
98. 1-15. 89	BM 1197				
	R + D 23/2	13.8	49.0	36.0	1.8
98. 1-15. 90	R + D 20/4	9.8	49.5	32.5	2.4
98. 1-15. 91	R + D 14/5	9.2	47.5	36.5	1.7
98. 1-15. 92		15.9	45.5	33.0	2.2
98. 1-15. 93	BM 11972				
	R + D 24/6	10.3	48.0	31.5	1.8
98. 1-15. 94		8.3	52.5	32.0	1.7
98. 1-15. 95	BM 11973				
	R + D 24/4	12.2	48.0	33.5	2.3
98. 1-15. 97	BM 11974				
	R + D 32/6	2.6	38.0	17.0	NR
98. 1-15. 98	BM 11975				
	R + D 20/3	10.3	48.0	33.5	2.5
98. 1-15. 99	BM 11976				
	R + D 27/2	12.3	48.5	35.5	2.3
98. 1-15. 102	BM 11977	5.4	44.5	19.0	NR
98. 1-15. 103	BM 11978	8.6	52.5	35.0	1.9
98. 1-15. 104	R+ D 23/3	14.1	44.5	32.0	1.9
98. 1-15. 105	BM 11979	11.8	51.0	36.0	2.4
98. 1-15. 106	R + D 25/2	14.3	50.5	33.5	2.2
98. 1-15. 107	BM 11980				
	R + D 20/1	8.6	47.5	33.5	2.1
98. 1-15. 108	R + D 24/2	7.6	48.5	32.5	2.3
98. 1-15. 109	BM 11981				
	R + D 25/3	13.6	55.0	38.0	2.2
98. 1-15. 111	BM 11982	6.3	42.5	31.0	2.4
98. 1-15. 112	R + D 23/6	13.3	43.5	38.0	2.4
98. 1-15. 113	BM 11983	9.1	45.0	31.5	1.9
98. 1-15. 114	BM 11984	7.0	43.0	32.5	1.8
98. 1-15. 115	R + D 30/5	12.2	50.0	36.0	2.2
98. 1-15. 117	R + D 29/3	14.6	47	32.5	1.8
98. 1-15. 118	BM 11985				
	R + D 30/3	12.7	52.5	36.5	1.7
98. 1-15. 120	BM 11986	13.4	46.0	37.0	2.0
98. 1-15. 121	BM 11987	9.8	43.5	40.0	1.3
98. 1-15. 122	R + D 29/5	14.4	48.5	36.0	2.2
98. 1-15. 123	BM 11988				
	R + D 29/4	11.0	54.0	37.5	1.3

Plaque registration number	Photograph Reference	Weight Kg	Height Cm	Width Cm	Depth of Rim Cm
98. 1-15. 124	BM 11989	8.0	47.0	36.5	1.9
98. 1-15. 126	BM 11990	6.5	46.5	31.5	1.9
98. 1-15. 128	BM 12171				
	R + D 29/1	10.8	44.0	38.5	2.2
98. 1-15. 129	BM 11991				
	R + D 29/2	8.0	50.5	37.5	2.0
98. 1-15. 131	R + D 30/1	10.9	49.5	32.5	3.2
98. 1-15. 132	BM 11993	19.6	50.5	36.5	1.8
98. 1-15. 133		9.6	48	32	2.2
98. 1-15. 134	R + D 25/6	12.4	51	33.5	2.0
98. 1.15. 135	R + D 30/6	3.8	44.0	16.5	NR
98. 1-15. 136	BM 11994				
	R + D 22/4	15.5	50	38.5	
98. 1-15. 137	BM 11995	13.1	47.0	37.5	1.6
98. 1-15. 138	BM 11996				
	R + D 26/6	4.1	40.5	16.5	NR
98. 1-15. 139	BM 11997	3.4	40.0	18.5	NR
98. 1-15. 140	BM 11998				
	R + D 28/3	6.9	51.5	34.0	1.4
98. 1-15. 141	BM 11999	9.1	53	36.5	1.8
98. 1-15. 142	BM 1200				
	R + D 28/1	12.1	44	36.5	1.5
98. 1-15. 143	BM 12001				
	R + D 28/4	3.4	46.0	19.0	NR
98. 1-15. 144	BM 12002				
	R + D 28/2	11.0	44.0	33.5	2.2
98. 1-15. 145	R + D 28/5	11.5	38.0	32.0	2.1
98. 1-15. 147	BM 12003	14.0	46.0	37.5	1.7
98. 1-15. 148		11.5	47.5	32.5	1.8
98. 1-15. 149		5.3	48.0	31.5	1.8
98. 1-15. 150	BM 12004	14.0	48.0	37.5	1.8
98. 1-15. 151	BM 12005	9.2	42.0	32.5	1.9
98. 1-15. 153	BM 12006				
	R + D 24/3	12.5	44.5	38.0	2.2
98. 1-15. 154		11.6	50.0	33.5	1.8
98. 1-15. 155	BM 12007	5.9	40.0	34.5	2.3
98. 1-15. 157	BM 12008	6.6	46.5	31.5	2.2
98. 1-15. 162	BM 12009	3.3	38.0	17.5	NR
98. 1-15. 163	BM 12010				
	R + D 27/5	3.4	37.0	19.5	NR
98. 1-15. 165	BM 12011				
	R + D 25/5	8.6	41.5	33.0	1.9
98. 1-15. 167	BM 12012	4.8	41.5	17.5	NR
98. 1-15. 168	BM 12013	3.8	38.5	18.0	NR
98. 1-15. 169		3.4	43.5	15.5	NR
98. 1-15. 170	BM 12014				
	R + D 30/2	3.3	47.0	18.0	NR
98. 1-15. 171	BM 12015	14.4	49.0	35.5	2.2
98. 1-15. 172	BM 12016	7.6	45.0	35.5	2.2
98. 1-15. 173	R + D 32/1	5.4	50.0	18.0	NR
98. 1-15. 174	BM 12017	1.8	35.0	19.0	NR

Appendix 5

Tables and Graphs

Copper

	Zn	Pb	Sn	Ni	As	Sb
III C 8353 (EWW:2)	1.3	0.7	0.8	0.06	0.08	0.19
III C 8366 (EWW:2)	1.3	1.1	0.7	0.06	0.06	0.20
98.1-75.34 (Boss)	0.4	0.85	0.2	0.17	0.3	1.5
98.1-15.26 (Rivet)	0.6	0.5	0.7	.045	0.25	0.3
98.1-15.171 (Chaplet)	1.3	2.0	1.0	.06	0.3	0.8

Note

1. III C prefixes refer to the sculptures in the Museum für Völkerkunde Berlin
2. The others are British Museum London accession numbers (see Appendix 4 for plaque dimensions and weights)
3. "MC" is a reference to main casting and "CO" to cast on

Leaded Red Brass

2-8% Zn Sn < 6%, Pb > 0.5%

	Zn	Pb	Sn	Ni	As	Sb
98.1-15.45	7.2	4.8	3.8	0.17	0.17	0.35
98.1-15.9	5.3	4.3	3.6	0.24	0.30	0.30
98.1-15.47	7.4	4.6	2.4	0.30	0.3	1.0
98.1-15.74	4.9	5.3	4.3	0.2	0.35	1.3
98.1-15.83	2.8	9.4	1.3	0.23	0.35	0.6
98.1-15.200(MC)	4.2	1.7	1.2	0.13	0.2	0.13
98.1-15.200(CO)	3.4	1.5	1.4	0.13	0.15	0.2
1961.AF.18.1(MC)	4.1	2.1	2.7	0.19	0.2	0.2
1961.AF.18.1(CO)	3.8	1.4	1.0	0.14	0.15	0.15
1944.AF.4.10	3.4	3.6	2.10	0.17	0.20	0.25
98.1-15.153	6.0	4.0	2.2	0.50	0.40	0.80
1913.12-11.1(MC)	4.1	5.5	4.0	0.26	0.30	0.5
98.1-15.46(MC)	3.2	1.7	1.0	0.13	0.30	0.15
98.1-15.48	5.4	6.6	2.4	0.37	0.25	0.8
III C 8477	4.0	4.1	1.2	0.15	0.10	0.30
III C 8211	6.8	3.1	3.1	0.68	0.33	0.65
III C 8471	6.4	5.0	1.4	0.16	0.07	0.33
III C 8456	5.0	3.6	1.8	0.14	0.07	0.26
III C 8429	5.7	3.5	1.7	0.12	0.12	0.27
III C 8428	7.8	3.7	1.3	0.21	0.05	0.23
III C 8436	4.0	2.0	1.4	0.09	0.26	0.17
III C 8427	5.4	2.5	1.0	0.14	0.09	0.13
III C 8392	3.6	2.1	1.2	0.10	0.22	0.25
III C 8249	3.3	5.2	3.1	0.24	0.20	0.76
III C 8468	7.6	10.0	0.6	0.36	0.10	0.50
III C 8467	3.7	3.5	2.2	0.13	0.13	0.33
III C 8433	4.5	5.2	2.8	0.10	0.18	0.66
III C 20830	4.7	1.9	1.3	0.22	0.10	0.25
III C 8252	3.5	8.0	2.8	0.19	0.24	0.88
III C 8401	4.7	3.2	1.8	0.16	0.12	0.35
III C 8435	6.2	2.9	2.9	0.19	0.11	0.27
III C 8459	4.9	4.2	1.1	0.14	0.08	0.26
III C 8432	3.6	3.2	1.1	0.15	0.06	0.27
III C 8207	2.7	1.8	0.7	0.13	0.04	0.24
III C 8350	5.4	3.3	1.8	0.12	0.06	0.22
III C 8461	7.7	4.6	0.7	0.18	0.09	0.25

	Zn	Pb	Sn	Ni	As	Sb
III C 8446	5.4	3.1	2.7	0.18	0.06	0.22
III C 8362	5.6	3.6	1.7	0.21	0.10	0.88
III C 8377	5.0	1.4	0.7	0.14	0.11	0.25
III C 8377	2.3	0.9	0.8	0.08	0.11	0.26
III C 8056	9.0	2.0	1.5	0.18	0.12	0.32
III C 8506	7.0	1.3	0.7	0.16	0.07	0.20
III C 9947	3.4	4.4	3.1	0.35	0.14	0.56

Leaded Semi-Red Brass

8-17% Zn, Sn < 6%, Pb > 0.5%

	Zn	Pb	Sn	Ni	As	Sb
98.1-15.27 (MC)	12.8	3.9	0.8	1.25	0.55	1.5
98.1-15.27 (CO)	9.6	3.9	1.2	0.9	0.35	2.0
98.1-15.40 (MC)	13.0	7.4	0.5	0.27	0.15	0.15
98.1-15.40 (CO)	14.2	7.0	0.3	0.2	0.15	0.15
98.1-15.117	14.0	4.1	0.65	1.3	0.5	1.4
98.1-15.111	14.5	6.5	0.3	0.27	0.2	0.3
98.1-15.172	13.40	2.0	0.7	0.13	0.07	0.2
98.1-15.30	11.80	6.5	0.4	0.2	0.13	0.06
98.1-15.34	10.60	12.5	0.7	0.37	0.35	0.8
98.1-15.15 (MC)	11.00	8.3	1.6	1.2	0.35	1.6
98.1-15.15 (CO)	9.3	9.9	2.0	0.51	0.35	1.0
98.1-15.11	11.0	3.2	4.0	0.16	0.30	0.25
98.1-15.4	11.0	6.2	1.0	0.20	0.2	0.8
98.1-15.2	11.0	11.0	1.0	0.45	0.4	0.6
98.1-15.36	11.0	12.0	0.8	0.44	0.2	1.1
98.1-15.35	9.3	12.0	0.9	0.42	0.3	0.65
98.1-15.174 (MC)	11.20	3.8	1.4	0.2	0.2	0.6
98.1-15.174 (fruit)	10.50	4.4	2.4	0.2	0.2	0.15
98.1-15.26	16.40	12.0	-	0.13	0.10	0.10
98.1-15.23	14.10	3.5	0.8	1.75	0.7	1.9
98.1-15.80	14.00	8.8	0.5	0.10	0.10	0.15
1900.7-20.2 (MC)	11.70	3.6	2.8	0.2	0.15	0.2
1900.7-20.2 (CO)	15.00	5.2	1.4	0.2	0.12	0.1
1903.10-22.6	16.80	13.0	0.5	0.11	0.6	0.2
98.1-15.77	14.30	1.8	2.6	0.15	0.20	0.05
98.1-15.171 (MC)	10.30	4.1	1.8	0.2	0.20	0.10
98.1-15.20	9.7	7.2	0.7	0.2	0.15	0.4
98.1-15.21	11.0	15.2	1.8	0.24	0.4	0.5
98.1-15.22	12.3	8.3	0.25	0.25	0.15	0.1
98.1-15.28	11.40	6.2	0.7	0.23	0.15	0.05
98.1-15.29	17.00	5.0	1.0	0.24	0.15	0.08
98.1-15.46 (CO)	11.20	2.9	1.1	0.18	0.10	0.1
98.1-15.31	8.90	3.3	4.9	0.11	0.12	0.3
98.1-15.39	14.01	4.5	1.1	0.08	0.15	0.15
98.1-15.49	8.6	7.0	1.8	0.54	0.30	0.8

	Zn	Pb	Sn	Ni	As	Sb
III C 8261	13.0	2.3	1.2	0.16	0.06	0.11
III C 8269	15.0	2.1	0.6	0.16	0.05	0.12
III C 8451	9.0	6.0	2.7	0.12	0.08	0.30
III C 8391	14.0	7.6	0.3	0.20	0.05	0.17
III C 8374	17.0	9.0	0.2	0.18	0.06	0.40
III C 8268	12.2	1.9	1.2	0.12	0.07	0.16
III C 8468	13.6	6.5	0.9	0.25	0.10	0.53
III C 8275	12.3	6.0	0.9	1.0	0.15	0.62
III C 8385	16.5	10.5	0.7	0.28	0.13	0.62
III C 8450	11.9	8.2	0.6	0.14	0.05	0.25
III C 8485	12.7	7.6	0.9	0.18	0.08	0.50
III C 8376	10.1	7.0	2.6	0.11	0.09	0.33
III C 7651	10.0	6.6	0.4	0.16	0.06	0.12
III C 8396	9.4	5.6	1.5	0.12	0.09	0.24
III C 27506	10.7	5.8	2.1	0.58	0.20	0.70
III C 8755	15.2	5.7	0.6	0.19	0.10	0.10
III C 8214	8.0	5.4	2.0	0.14	0.10	0.28
III C 8438	9.8	6.5	2.1	0.12	0.11	0.30
III C 8372	16.6	9.5	0.1	0.14	0.08	0.32
III C 8452	9.8	6.4	2.3	0.13	0.09	0.25
III C 8258	15.0	1.9	1.1	0.17	0.07	0.12
III C 8387	10.5	8.2	2.4	0.10	0.09	0.24
III C 8481	12.9	8.6	2.4	0.12	0.09	0.30
III C 8257	14.5	7.4	0.6	0.22	0.06	0.25
III C 8206	12.0	7.3	1.8	0.21	0.13	0.36
III C 8383	10.3	6.7	1.6	0.19	0.10	0.34
III C 8440	8.2	6.8	4.5	0.20	0.20	0.45
III C 8209	10.5	6.8	0.9	0.18	0.08	0.18
III C 7657	12.2	1.8	0.5	0.13	0.07	0.15
III C 7656	10.8	4.5	1.3	0.16	0.10	0.22
III C 8349	13.0	8.5	0.6	0.15	0.10	0.25
III C 8367	8.4	5.6	2.4	0.18	0.15	0.35
III C 8382	15.5	9.4	0.3	0.22	0.09	0.22
III C 27507	11.0	6.0	0.4	0.29	0.11	0.14
III C 8358	17.0	6.4	0.4	0.28	0.05	0.24
III C 10879	11.0	10.2	0.7	0.42	0.17	1.1
III C 8277	15.0	6.0	0.5	0.13	0.06	0.10
III C 8054	15.0	1.7	0.8	0.14	0.07	0.08
III C 8208	8.2	4.3	0.2	0.16	0.06	0.08

	Zn	Pb	Sn	Ni	As	Sb
III C 8393	14.0	6.8	0.1	0.26	0.06	0.22
III C 8398	8.6	5.7	1.3	0.15	0.09	0.38
III C 8267	8.0	1.4	0.6	0.13	0.06	0.13
III C 10874	11.0	4.7	0.4	0.20	0.06	0.13
III C 8407	14.7	8.8	1.1	0.32	0.17	1.2
III C 8390	13.0	7.1	0.2	0.16	0.08	0.29
III C 27485	9.5	0.9	0.3	0.11	0.04	0.08
III C 8378	9.7	3.1	0.4	0.62	0.16	0.68
III C 8056	9.0	2.0	1.3	0.18	0.12	0.32
III C 8375	13.0	8.4	0.5	0.16	0.03	0.47

Leaded Yellow Brass

Zn 17%, Sn < 6%, Pb > 0.5%

	Zn	Pb	Sn	Ni	As	Sb
98.1-15.4 (MC)	22.5	9.6	0.7	0.23	0.15	0.2
98.1-15.1	17.20	6.2	0.5	0.2	0.15	0.05
98.1-15.97	17.5	2.2	0.7	0.16	0.15	0.05
98.1-15.44	18.0	11.0	0.3	0.23	0.10	0.5
98.1-15.38	17.20	2.2	0.7	0.17	0.1	0.07
98.1-15.143 (MC)	21.0	2.3	0.6	0.2	.06	0.05
98.1-15.143 (CO)	21.5	2.1	1.0	0.2	0.15	0.2
N.N. (M:73)	27.0	3.1	0.3	.025	0.2	-
99.6-10.2	34.5	0.85	0.35	0.03	.05	-
III C 8373	20.5	11.2	0.6	0.35	0.10	0.37
III C 8256	18.5	8.2	0.1	0.21	0.08	0.12
III C 8352	18.0	8.5	0.9	0.26	0.11	0.65
III C 8205	18.5	8.2	0.5	0.16	0.10	0.19
III C 8411	18.5	9.8	0.1	0.34	0.07	0.40
III C 8054 (fuB)	20.0	2.3	0.9	0.18	0.07	0.13
III C 8055	19.0	2.3	0.7	0.23	0.09	0.10
III C 7653	27.0	2.1	-	0.05	0.06	0.02

Leaded Sn Bronze

	to 20% Zn,		Zn < Sn,		Pb > 0.5	
	Zn	Pb	Sn	Ni	As	Sb
98.1-15.8	2.3	3.0	5.3	0.2	0.2	0.2
98.1-15.17	2.4	2.4	3.9	0.16	0.25	0.3
98.1-15.189	1.8	3.7	6.3	0.18	0.20	0.25
98.1-15.203	4.1	4.3	5.1	0.45	0.35	0.6
98.1-15.12	1.8	2.7	5.5	0.15	0.25	0.2
1913.12-11.1 (CO)	4.2	13.1	4.4	0.19	0.37	0.6
III C 8250	1.5	1.6	5.4	0.10	0.18	0.34
III C 8266	1.8	2.4	8.3	0.21	0.30	0.45
III C 8255	1.6	1.4	6.5	0.12	0.11	0.32

Zn 1.5 → 4.8
Pb 1.4 → 4.3 (disregarding CO)
Sn 3.9 → 8.3
Ni 0.12 → 0.45
As 0.11 → 0.35
Sb 0.2 → 0.6

Physical Data: Bas-Relief Wall Plaques: Museum für Völkerkunde Berlin

from Werner 1970,142-151, Dimensions from Museum Records

				Dimensions cm.	
		Sn/Pb	Sb/As	Ht	Width
43.	III C 8477	0.97	3.0	47	30
44.	III C 8261	5.65	1.83	49	19
45.	III C 8211	2.13	1.96	32	17
46.	III C 8471	1.21	4.71	48	20
47.	III C 8456	1.38	3.71	41.3	17.5
48.	III C 8429	1.62	2.25	42.5	20
49.	III C 8269	7.14	2.4	46	12
50.	III C 8250	0.94	1.89	47	20.5
51.	III C 8451	1.5	3.75	46	29
52.	III C 8428	2.1	4.6	47.6	30
53.	III C 8391	1.8	3.4	47	32
54.	III C 8374	1.88	6.67	47	38.5
55.	III C 8268	6.42	2.28	44.5	18
56.	III C 8486	2.09	5.3	20	34
57.	III C 8436	2.0	0.65	37	36
58.	III C 8275	2.05	4.13	43	19.5
59.	III C 8385	1.57	4.76	37	18
60.	III C 8450	1.45	5.0	25	16
61.	III C 8485	1.67	6.25	28	18
62.	III C 8376	1.44	3.67	41	30
63.	III C 7651	1.51	2.0	45	19
64.	III C 8396	1.67	2.67	44	29.5
65.	III C 27506	1.84	3.5	40	21
66.	III C 8373	1.83	3.7	43	37
67.	III C 8755	2.67	1.0	39	32
68.	III C 8427	2.16	1.44	48	32
69.	III C 8437	.49	2.78	45.7	30.5
70.	III C 8214	1.48	2.8	39.5	18
71.	III C 8438	1.50	2.73	45	31
72.	III C 8392	1.71	1.13	47	31
73.	III C 8256	2.25	1.5	36	16
74.	III C 8372	1.74	4.0	48	30.5
75.	III C 8249	0.63	3.8	44	18
76.	III C 8468	0.76	5.0	38	18
77.	III C 8467	1.05	2.53	19	43
78.	III C 8452	1.53	2.78	49	30

		Sn/Pb	Sb/As	Dimensions cm. Ht	Width
79.	III C 8258	7.89	1.71	44.5	16
80.	III C 8387	2.67	1.28	46	17
81.	III C 8481	1.5	3.3	48	34
82.	III C 8257	1.95	4.16	37	19
83.	III C 8352	2.11	5.91	38	28.5
84.	III C 8433	0.86	3.67	40	38
85.	III C 8206	1.64	2.76	45	34
86.	III C 8205	2.25	1.9	44	36.5
87.	III C 8383	1.53	3.4	49	34.5
88.	III C 8440	1.20	2.25	44	30
89.	III C 8209	1.54	2.25	50	30
90.	III C 7657	6.78	2.14	44.1	19.4
91.	III C 20830	2.47	2.5	54	39
92.	III C 7656	2.4	2.2	49	17
93.	III C 8349	1.52	2.5	44	17
94.	III C 8367	1.5	2.33	39.4	19.7
95.	III C 8382	1.64	2.44	44	20
96.	III C 27507	1.83	1.27	43.2	18.1
97.	III C 8266	0.75	1.5	42.3	20
98.	III C 8358	2.65	4.8	43	33
99.	III C 8352	0.43	3.67	38	28.5
100.	III C 10879	1.07	6.47	38	37
101.	III C 8277	2.5	1.67	97	30
102.	III C 8411	1.88	5.71	37	15
103.	III C 8353	1.85	2.38	47	29
104a.	III C 8054	8.82	1.14	57.5	40
105.	III C 8401	1.46	2.91	50	19.5
106.	III C 8435	2.13	2.45	49	34.5
107.	III C 8208	1.90	1.33	50	37
108.	III C 8055	8.26	1.11	52	38
109.	III C 8393	2.05	3.67	52	33
110.	III C 8398	1.51	4.22	41	29
111.	III C 8459	1.16	3.25	45	18
112.	III C 8432	1.12	4.5	34	16
113.	III C 8207	1.5	6.0	47	29
114.	III C 8350	1.64	3.67	36	18
115.	III C 8267	5.71	2.16	44	17.5
116.	III C 10874	2.34	2.16	52	24

	Sn/Pb	Sb/As	Dimensions cm. Ht	Width
117. III C 8461	1.67	2.78	41	17
118. III C 8407	1.67	7.05	43.5	28.5
119. III C 8390	1.83	3.62	43.0	40
120. III C 8255	1.14	2.91	47	35.2
121. III C 27485	10.56	2.0	55	39
122. III C 8366	1.18	3.33	45	29
123. III C 8446	1.74	3.67	52	31
124. III C 8362	1.56	8.8	48	30
125a. III C 8377	3.57	2.27	52	40
126. III C 8378	3.12	4.25	42	38
135. III C 7653	12.8	0.33	42	33
136a. III C 8056	4.5	2.67	48	39
138. III C 9947	0.78	4.0	49	38
152. III C 8375	1.52	3.5	44	36

Museum für Völkerkunde - Sculpture in Round
from: Werner 1970, 138-151

		Zn/Pb	Sb/As
1.	III C 8176	9.3	0.5
2.	III C 8203	10.0	0.67
3.	III C 8198	14.0	0.43
4.	III C 8191	11.67	0.58
5.	III C 8189	10.00	0.57
6.	III C 8186	10.00	0.60
7.	III C 7660	38.0	0.33
8.	III C 8181	10.0	0.25
9.	III C 8491	8.69	0.63
10a.	III C 8168	7.6	1.16
10b.	III C 8168	7.0	0.50
10c.	III C 8168	3.14	0.29
10d.	III C 8168	9.3	0.28
10e.	III C 8168	7.6	0.14
11a.	III C 20296	0.37	2.75
11b.	III C 20296	1.21	3.4
12.	III C 8527	7.58	0.86
13.	III C 12508	1.38	4.3
14.	III C 7658	4.9	2.38
15.	III C 12513	6.16	3.25
16.	III C 8530	10.8	0.75
17.	III C 14499c	1.05	0.10
18a.	III C 10873	6.96	1.25
18b.	III C 10873	-	0.96
19.	III C 18154	2.5	2.0
20.	III C 8075	7.0	0.83
21a.	III C 8514	1.57	3.42
21b.	III C 8514	1.88	2.75
22.	III C 8515	7.8	0.75
23a.	III C 8216	-	0.18
23b.	III C 8216	6.67	0.26
24.	III C 8215	20.76	0.27
25a.	III C 8085	1.0	2.9
25b.	III C 8085	1.93	3.57
26a.	III C 8165	8.21	0.50
26b.	III C 8165	8.33	0.28
26c.	III C 8165	7.67	0.50

		Zn/Pb	Sb/As
26d.	III C 8165	7.14	0.50
27a.	III C 8488	6.67	0.50
27b.	III C 8488	8.8	0.40
28a.	III C 9948	2.09	0.48
29.	III C 19275	-	0.19
30a.	III C 10872	7.6	2.0
30b.	III C 10872	5.41	2.0
31a.	III C 10885	1.18	0.5
31b.	III C 10885	13.5	0.75
31c.	III C 10885	12.2	0.60
32.	III C 8754	3.0	0.31
33.	III C 9952	10.8	0.57
34.	III C 19276	3.0	0.75
35.	III C 8753	1.75	2.63
36.	III C 17118	16.0	0.4
37.	III C 8756	10.0	0.56
38.	III C 9951	11.8	1.5
39.	III C 10883	10.8	0.57
40a.	III C 8166	9.0	0.67
40b.	III C 8166	10.0	0.67
41a.	III C 17117	12.14	1.75
41b.	III C 17117	8.18	1.20
42a.	III C 8164	11.2	0.43
42b.	III C 8164	11.9	0.67
127.	III C 12529	9.26	1.38
128.	III C 21931	47.5	0.25
129.	III C 27490	13.75	0.58
130.	III C 12535	2.71	2.18
131.	III C 10869	-	0.2
132.	III C 41194	21.1	0.67
133.	III C 8082	5.25	-
134.	III C 8196	17.5	0.4
137a.	III C 10863	27.7	-
137b.	III C 10863	21.0	-
139.	III C 20295	12.6	0.25
140a.	III C 10864	10.3	0.16
140b.	III C 10864	11.0	-
141.	III C 10884	3.09	3.71
142.	III C 10866	5.41	0.63
143.	III C 10878	0.52	5.07

		Zn/Pb	Sb/As
144.	III C 12514	-	0.09
145.	III C 8057	5.37	2.0
146.	III C 8080	11.7	1.28
147.	III C 20300	2.29	2.0
148.	III C 8329	-	0.26
149.	III C 8169	5.4	3.21
150.	III C 12507	2.5	1.58
151.	III C 10877	1.72	0.89
153.	III C 10876	-	0.29
154a.	III C 8511	1.9	3.28
154b.	III C 8511	1.33	3.5

British Museum 1979 Unpublished

		Zn/Pb	Sb/As
1.	M.Reg.1952 AF.11.1	1	1
2.	M.Reg.1952 AF.11.1	2.67	0.43
3.	M.Reg.1939 AF.34.1	1.31	0.45
4.	M.Reg.1939 AF.31.1	1.6	0.4
5.	M.Reg.97.12-17.3	1.25	1
6.	M.Reg.97.12-17.3	0.94	0.555
7.	M.Reg.97.12-17.3	1.89	10
8.	M.Reg.1963 AF.9.1	1.333	4.5
9.	M.Reg.1963 AF.9.1	1.333	0.222
10.	M.Reg.1944 AF.4.11	0.95	4
11.	M.Reg.1944 AF.4.11	1.77	6.54
12.	M.Reg.97.12-17.2	5.05	0.555
13.	M.Reg.97.12-17.2	3.888	5
14.	M.Reg.1903 10-22.4	2.44	0.24
15.	M.Reg.98.10-25.1	5.56	0.2
16.	M.Reg.1944 AF.4.12	26.63	0.066
17.	M.Reg.1944 AF.4.12	6.29	0.28
18.	M.Reg.1944 AF.4.12	8.96	-
19.	M.Reg.1952 AF.30.1	1.47	0.6
20.	M.Reg.1948 AF.9.1	0.97	1
21.	M.Reg.1948 AF.9.1	1.43	4.5
22.	M.Reg.1948 AF.9.1	2	5.333
23.	M.Reg.1944 AF.4.4	10.54	0.4
24.	M.Reg.1944 AF.4.3	9.57	0.21
25.	M.Reg.1944 AF.4.5	50	0.1
26.	M.Reg.1944 AF.4.2	8.64	0.4
27.	M.Reg.1944 AF.4.2	9.93	0.3
28.	M.Reg.1944 AF.4.2	25.6	1.666
29.	M.Reg.97.12-17.1	8.18	0.5
30.	M.Reg.1944 AF.4.1	16.59	-
31.	M.Reg.1944 AF.4.1	9.1	0.2
32.	M.Reg.1903 10-22.3	19.47	-
33.	M.Reg.1961 AF.9.1	47.14	0.066
34.	M.Reg.1944 AF.46.156	1.27	3
35.	M.Reg.1903 10-22.1	1.48	0.5

		Zn/Pb	Sb/As
36.	M.Reg.1903 10-22.1	1.48	0.5
37.	M.Reg.1949 AF.46.157	1.53	0.666
38.	M.Reg.1949 46-157	1.58	0.4
39.	M.Reg.1905 12-1.1	13.58	-
40.	M.Reg.1949 AF.46.158	5.166	4
41.	M.Reg.1949.AF.46.158	1.333	0.333
42.	M.Reg.1928 1-12.1	3.23	0.86
43.	M.Reg.1928 1-12.1	3.666	0.14
44.	M.Reg.1944 AF.4.7	8.57	-
45.	M.Reg.1944 AF.4.7	7.95	-
46.	M.Reg.1944 AF.4.13	1.93	0.5
47.	M.Reg.98.1-15.8	12.5	-
48.	M.Reg.98.1-15.8	9.64	-
49.	M.Reg.1949 AF.38.1	1.1333	2.0
50.	M.Reg.1911 6-20.1	1.06	0.8
51.	M.Reg.1911 6-20.1	1.896	5.71
52.	M.Reg.1923 10-13.1	1.76	2
53.	M.Reg.97.10-11.2	10.38	-
54.	M.Reg.98.10-25.2	3.4	0.6
55.	M.Reg.97.55	0.85	0.333
56.	M.Reg.97.55	10	0.14
57.	M.Reg.1944 AF.4.21	24.33	11.25
58.	M.Reg.1944 AF.4.21	8.55	0.23333
59.	M.Reg.1964 AF.3.1	16.88	5
60.	M.Reg.1964 AF.3.1	2	0.071
61.	M.Reg.98.1-15.17	8.41	1.5
62.	M.Reg.98.1-15.17	0.13	1
63.	M.Reg.1949 AF.46.164	5.91	0.5
64.	M.Reg.1949 AF.46.164	6.95	-
65.	M.Reg.98.1-15.27	3.28	2.73
66.	M.Reg.98.1-15.27	2.46	5.71
67.	M.Reg.97.10-11.1	3	1.25
68.	M.Reg.98.1-15.4	1.76	1
69.	M.Reg.98.1-15.4	2.03	2.14
70.	M.Reg.98.1-15.45	1.5	2.06
71.	M.Reg.98.1-15.117	3.41	
72.	M.Reg.98.1-15.111	2.23	1.5
73.	M.Reg.98.1-15.172	6.7	2.86
74.	M.Reg.98.1-15.3	1.82	0.46.

		Zn/Pb	Sb/As
75.	M.Reg.98.1-15.34	0.84	2.29
76.	M.Reg.98.1-15.34	0.47	5
77.	M.Reg.98.1-15.15	1.33	4.57
78.	M.Reg.98.1-15.15	0.94	2.86
79.	M.Reg.98.1-15.11	3.44	0.83
80.	M.Reg.98.1-15.9	1.23	1
81.	M.Reg.98.1-15.8	1.77	1
82.	M.Reg.98.1-15.4	2.34	1.333
83.	M.Reg.98.1-15.4	1.77	4
84.	M.Reg.98.1-15.2	1	1.5
85.	M.Reg.98.1-15.1	2.77	0.333
86.	M.Reg.98.1-15.97	7.95	0.333
87.	M.Reg.98.1-15.44	1.64	5
88.	M.Reg.98.1-15.36	0.92	5.5
89.	M.Reg.98.1-15.35	0.78	2.17
90.	M.Reg.98.1-15.17	8.333	4
91.	M.Reg.98.1-15.174	2.95	3
92.	M.Reg.98.1-15.174	2.39	0.75
93.	M.Reg.98.1-15.38	7.82	0.7
94.	M.Reg.98.1-15.47	1.61	3.333
95.	M.Reg.98.1-15.26	1.37	1
96.	M.Reg.98.1-15.26	1.2	1.2
97.	M.Reg.98.1-15.23	4.03	2.71
98.	M.Reg.98.1-15.17	1	1.2
99.	M.Reg.98.1-15.74	0.92	3.71
100.	M.Reg.98.1-15.143	0.11	0.83
101.	M.Reg.98.1-15.143	10.24	1.333
102.	M.Reg.98.1-15.8	1.59	1.5
103.	M.Cat.98.1-15.83	0.2988	1.71
104.	M.Reg.98.1-15.189	0.49	1.25
105.	M.Reg.98.1-15.200	2.47	0.65
106.	M.Reg.98.1-15.200	2.27	1.3333
107.	M.Reg.98.1-15.203	0.95	1.71
108.	M.Reg.1900.7-20.2	3.25	1.333
109.	M.Reg.1900.7-20.2	2.88	0.83
110.	M.Reg.1903.10-22.6	1.23	2
111.	M.Reg.1961.AF.18.1	1.95	1
112.	M.Reg.1961.AF.18.1	2.71	1
113.	M.Reg.98.1-15.77	7.94	0.25

	Zn/Pb	Sb/As
114. M 73	8.7	-
115. M.Reg.1944.AF.4.10	0.94	1.25
116. M.Reg.99.6-10.2	40.59	-
117. M.Reg.98.1-1.171	2.51	0.5
118. M.Reg.98.1-1.171	0.65	2.666
119. M.Reg.98.1-15.153	1.5	2
120. M.Reg.98.1-15.12	0.666	0.8
121. M.Reg.98.1-15.20	0.097	2.666
122. M.Reg.98.1-15.21	0.72	1.25
123. M.Reg.98.1-15.22	1.48	0.6666
124. M.Reg.98.1-15.28	1.84	0.333
125. M.Reg.98.1-15.29	3.4	0.53
126. M.Reg.1913.12-11.1	0.75	1.666
127. M.Reg.1913.12-11.1	0.32	1.62
128. M.Reg.98.1-15.46	3.86	1
129. M.Reg.98.1-15.46	1.88	0.5
130. M.Reg.98.1-15.31	2.697	2.5
131. M.Reg.98.1-15.39	3.11	1
132. M.Reg.98.1-15.48	0.82	3.2
133. M.Reg.98.1-15.49	1.23	2.666
134. M.Reg.1947.AF.18.40	11.14	4.17
135. M.Reg.1947.AF.18.40	0.75	0.5
136. M.Reg.1947.AF.18.40	9.32	2.92
137. M.Reg.1962.AF.26.3	1.04	3
138. M.Reg.AF.18.41	8.54	0.333
139. M.Reg.97.12-17.4	2.222	1.2
140. M.Reg.1941.AF.2.1	9.83	0.2
141. M.Reg.1959.AF.4.1	9.82	0.08
142. M.Reg.1959.AF.4.1	8.28	0.08
143. M.Reg.1909.8-11.3	-	1.8
144. M.Reg.1905.4-13.62	-	8.333
145. 1949.AF.7.7	0.13	0.14
146. M.Reg.1944.AF.4.40	3.2	12
147. M.Reg.1944.AF.4.40	5.22	2.5
148. M.Reg.1956.AF.15.6	-	1
149. M.Reg.1956.AF.15.6	-	7
150. M.Reg.1956.AF.15.6	-	1.56
151. M.Reg.1956.AF.15.6	-	4
152. M.Reg.1956.AF.15.6	-	2.5

	Zn/Pb	Sb/As
153. M.Reg.1956.AF.15.6	-	-
154. M.Reg.1956.AF.15.6	-	0.5
155. M.Reg.1956.AF.15.6	-	0.5
156. M.Reg.1956.AF.15.6	-	0.25
157. M.Reg.98.1-15.8	10.2	0.17

Table I

A. BRONZES

Benin	Sn	Ni	Pb
Berlin III C 19275 (EB:1)	8.7	0.03	0.10
Berlin III C 9948 (EB:2)	6.5	0.07	1.1
Berlin III C 10873 (EB:3)	7.5	0.06	Sp.
Berlin III C 19276 (EB:4)	4.7	0.04	0.20
Berlin III C 10877 (Aquamanile:1)	7.0	<0.09	1.1
Berlin III C 10876 (IU:1)	6.6	<0.01	0.4
Berlin III C 8329 (Von Luschan 1919,T.72b)	9.3	0.04	0.4
BM:M.Reg.1952 Af.11.1	9.0	0.04	0.3
BM:M.Reg.1949 Af.7.7	5.0	0.04	3.8
BM:M.Reg.1909.8-11.3	11.5	.02	0.15
(Foreman & Dark 1960,pls.90,91)			
Penannular objects Median	9.4	0.066	0.60
(Connah 1975,232)			
Bracelets Median	7.9	0.074	0.60
(Connah 1975,232)	11.0	0.046	0.23
Benin Museum Plaque			
(Willett and Fleming 1976,140)	~10.0	?	1.0
Face Mask (Willett 1973,12,14)	~10.0	-	1.0
Tada (Shaw 1969,94,97) Median	7.3	0.077	0.52
Jebba Bowman (Willett 1964,83)	6.6	0.098	0.80
(ill.Fagg 1963,pl.57)			

	Zn	Pb	Sn	Sb	As	$Zn/_{Pb}$	$Sb/_{As}$
Tada Median	1.6	0.52	7.3	0.28	0.37	2.81	0.61
Jebba Bowman	1.1	0.80	6.6	0.40	0.38	1.4	1.33
Ife Heads Median						0.95	0.46
(Werner & Willett 1975,Table 7)							

Benin Heads:	Zn	Pb	Sn	Sb	As	$Zn/_{Pb}$	$Sb/_{As}$
Berlin III C 7658, type 1	5.4	1.1	0.7	0.19	0.08	4.9	2.4
Berlin III C 8527, type 1 (Heads:1)	7.1	1.2	0.6	0.15	0.13	7.6	1.15
BM:M.Reg.97.12-17.3, Neck, type 1	1.05	0.8	7.0	0.5	0.5	1.31	1.0
" " " " " hair	.66	0.7	8.3	0.25	0.45	0.85	0.56
Berlin III C 8169, type 2, Heads:2	5.4	1.0	1.4	0.19	0.12	5.4	1.58

Europeans

British Museum	$Zn/_{Pb}$	$Sb/_{As}$
72. M.Reg.98.1-15.111	2.23	1.5
79. M.Reg.98.1-15.11	3.43	0.83
80. M.Reg.98.1-15.9	1.23	1.0
81. M.Reg.98.1-15.8	0.77	1.0
82. M.Reg.98.1-15.4	2.34	1.33
83. M.Reg.98.1-15.4(cast on)	1.77	4.0
84. M.Reg.98.1-15.2	1.0	1.5
85. M.Reg.98.1-15.1	2.77	0.33
115. M.Reg.1944 Af.4.10	0.94	1.25
120. M.Reg.98.1-15.12	0.67	0.80
121. M.Reg.98.1-15.20	1.35	2.67

Museum für Völkerkunde Berlin		
83. III C 8352	2.11	5.9
92. III C 7656	2.4	2.2
93. III C 8349	1.52	2.5
94. III C 8367	1.5	2.33
103. III C 8353	1.86	2.38
114. III C 8350	1.64	3.67
122. III C 8366	1.18	3.33
124. III C 8362	1.96	8.8
138. III C 9947	0.77	4.0

20 samples

$Zn/_{Pb}$ = 0.67 → 3.43 median $Zn/_{Pb}$ = 1.54

$Sb/_{As}$ = 0.33 → 8.8 median $Sb/_{As}$ = 3.3

British Museum:

11 samples

$Zn/_{Pb}$ = 0.77 → 3.43 median $Zn/_{Pb}$ = 1.77

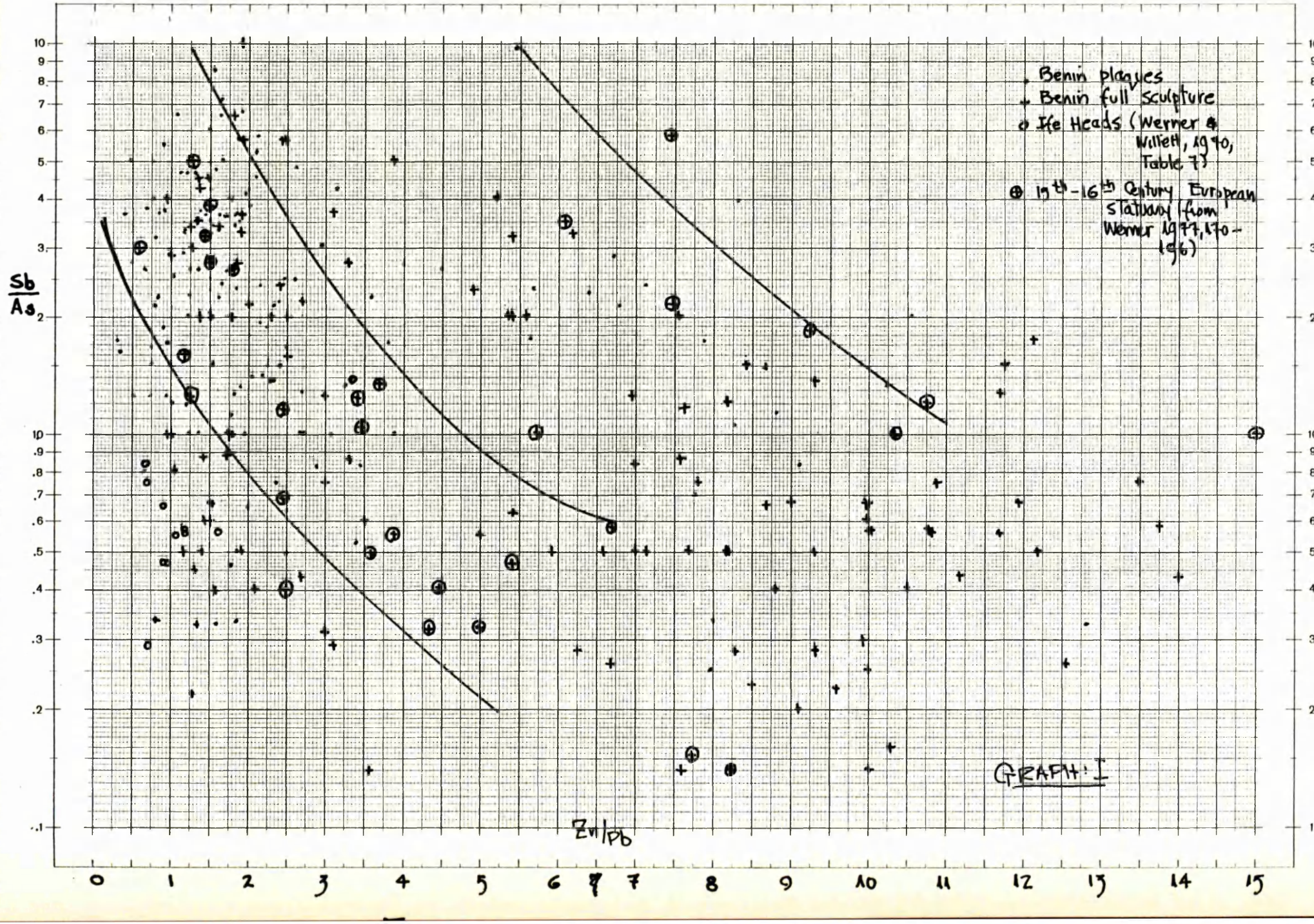
$Sb/_{As}$ = 0.33 → 4.0 median $Sb/_{As}$ = 1.0

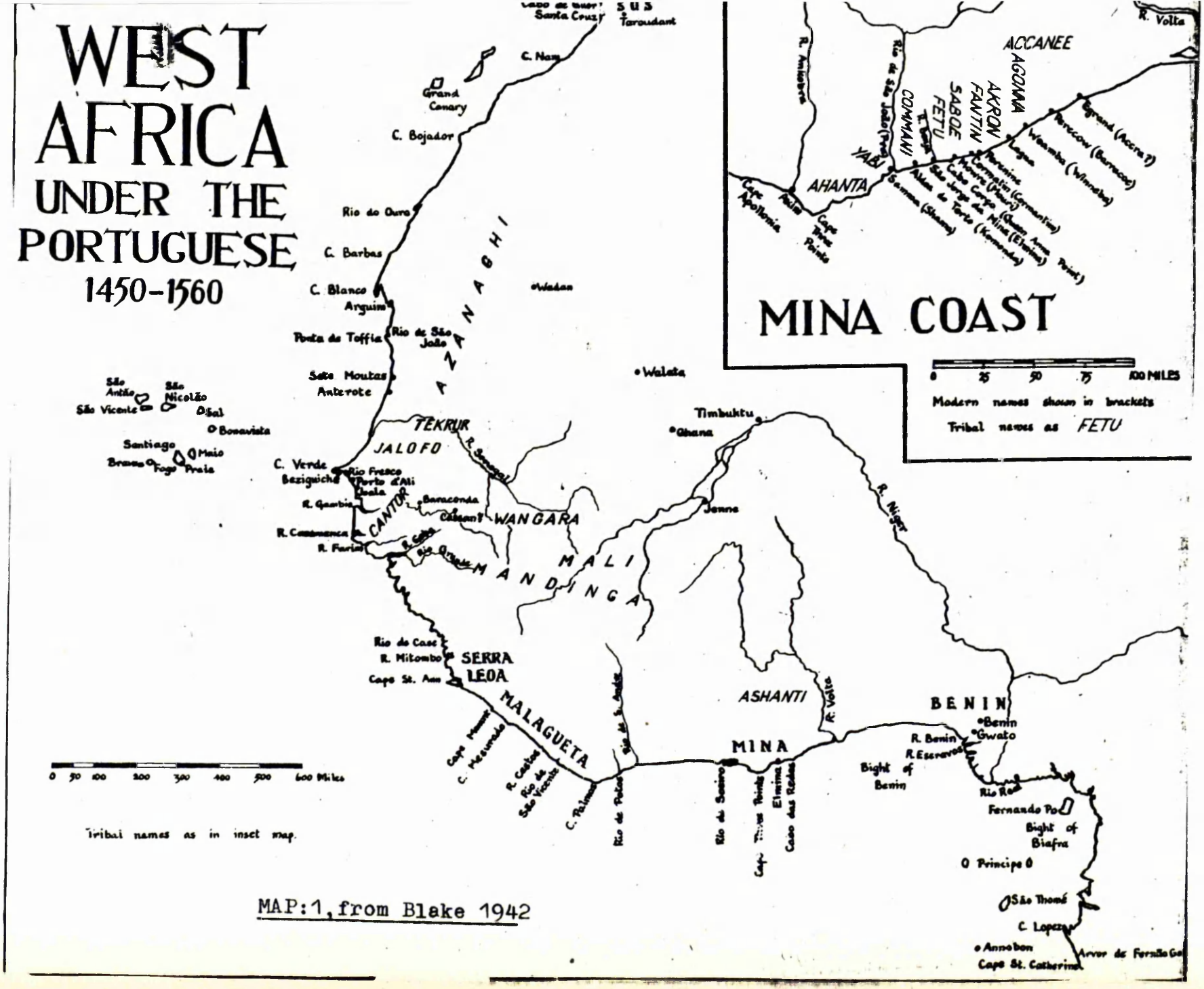
Museum fur Volkerkunde Berlin:

9 samples

$Zn/_{Pb}$ = 0.77 → 2.4 median $Zn/_{Pb}$ = 1.56

$Sb/_{As}$ = 2.2 → 8.8 median $Sb/_{As}$ = 3.67


Benin plaques
Benin full sculpture
Ife Heads (Werner & Willett, 1970, Table 7)
19th-16th Century European statuary (from Werner 1977, 170-196)
Sb/As
Zn/Pb
GRAPH: I



MAP:1, from Blake 1942

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Abbreviations

JAH = Journal of African History

JAS = Journal of the African Society

IAI = International African Institute

JHSN = Journal of the Historical Society of Nigeria

IFAN = Institut fondamental de l'Afrique Noire

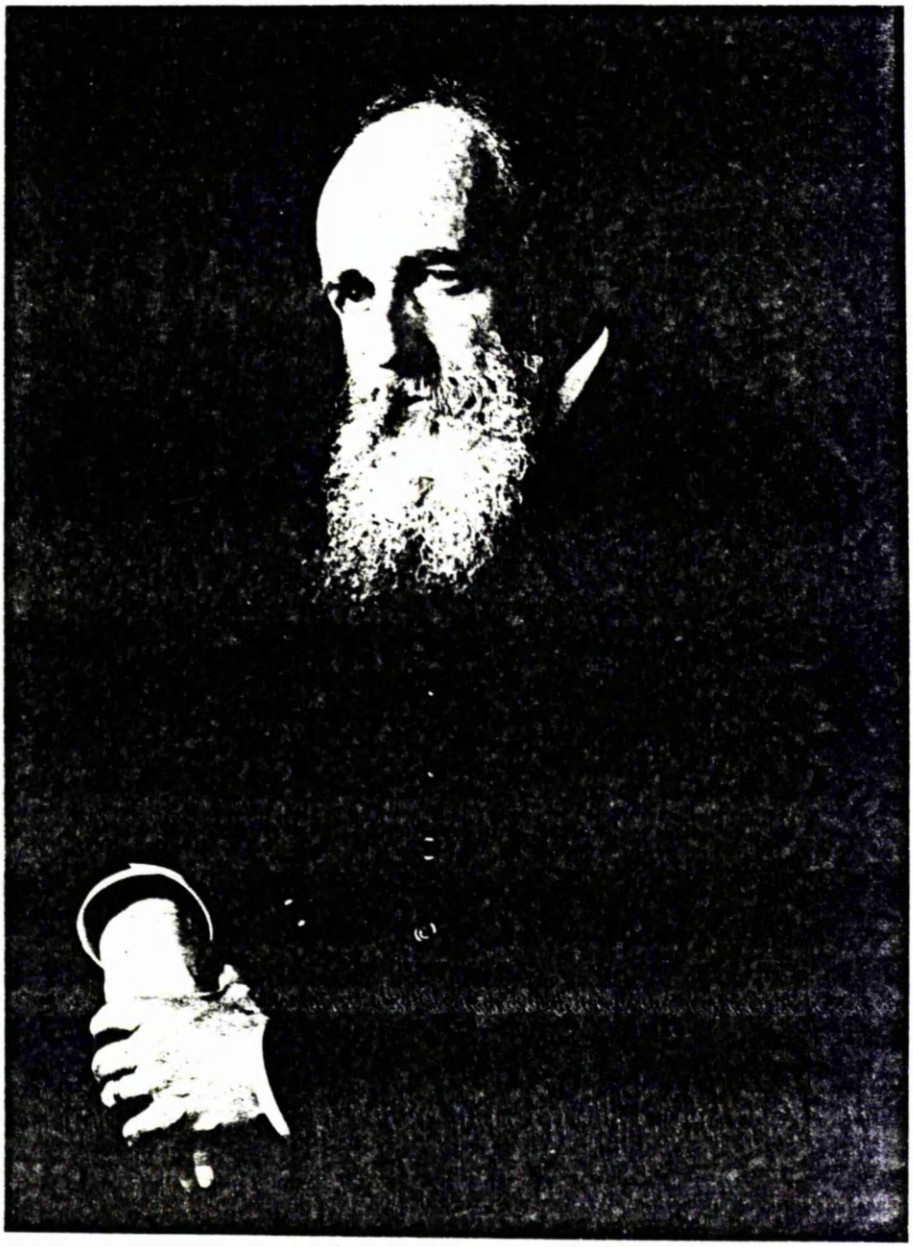
ZfE = Zeitschrift für Ethnologie

JRAI = Journal of the Royal Anthropological Institute

ORIGINS, CHRONOLOGY AND METALLURGY OF THE BENIN WALL BAS-RELIEFS

VOLUME II

PHOTOGRAPHS



Felix von Luschan, 1854-1924

Concordance Table

EW:1.BM:98.1-15.11,40.5x16.5 cm.

EW:2.BM:98.1-15.12
46x32.5 cms.

EW:3,Rijksmuseum Voor Volkenkunde,Leiden,
no.1243-34,28x17 cm.,1.15 kg.
(Museum photo)

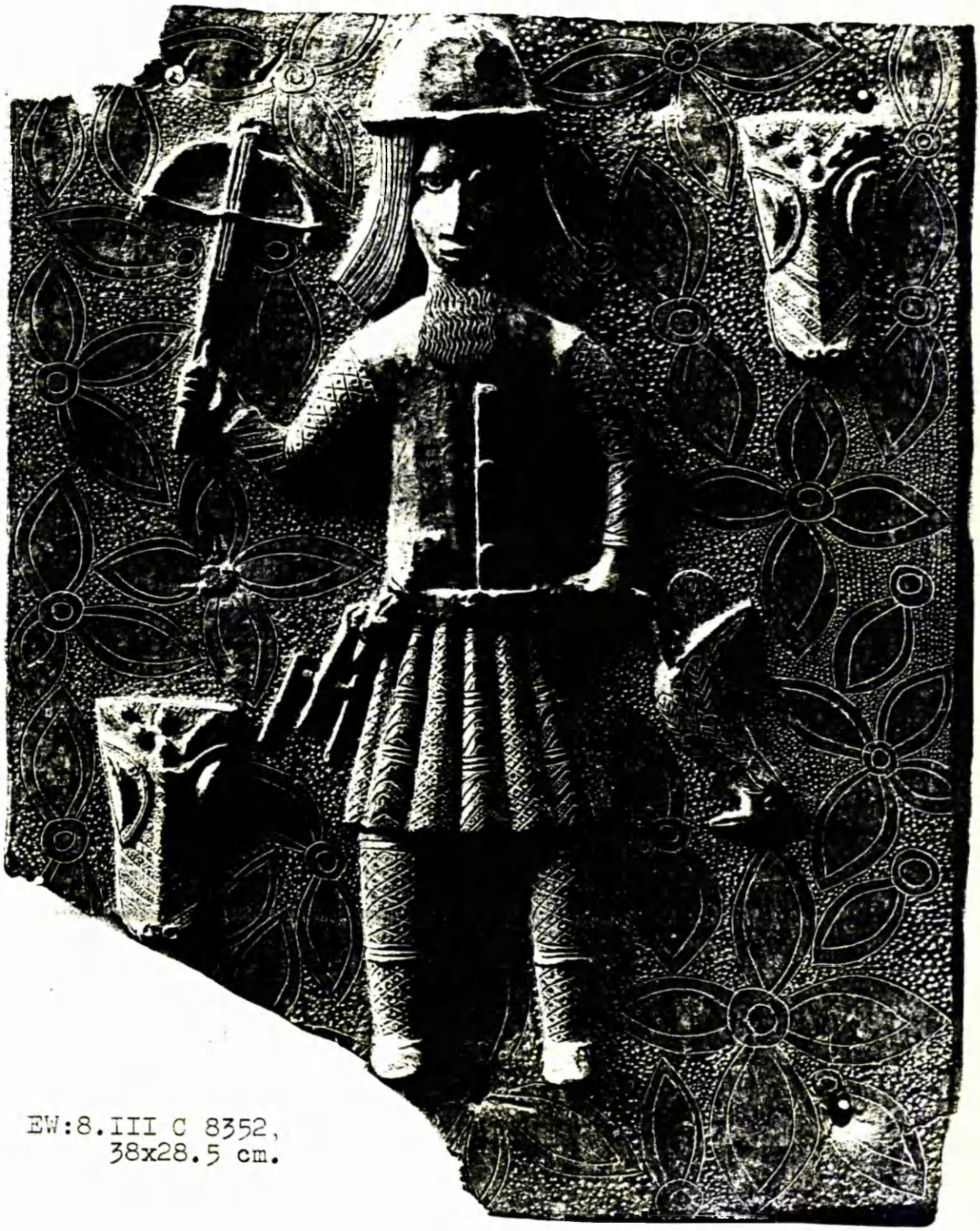
EW:6.BM:98.1-15.6,37.5x19.5 cm.

EW:5.Museum für Völkerkunde-
Hamburg,no.C 2304,
41x16 cm.,2.17 kg.

EW:4.III C 8350,36x18 cm.

EW:7.III C 8349,44x17 cm.

EW:9.Schwarz Coll.,Amsterdam
34x18 cm.



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EW:10.BM:98.1-15.10,45.5x29 cm.

EW:12.BM:98.1-15.1,
40x18 cm.

EW:11.BM:98.1-15.5,50.5x
38 cm.

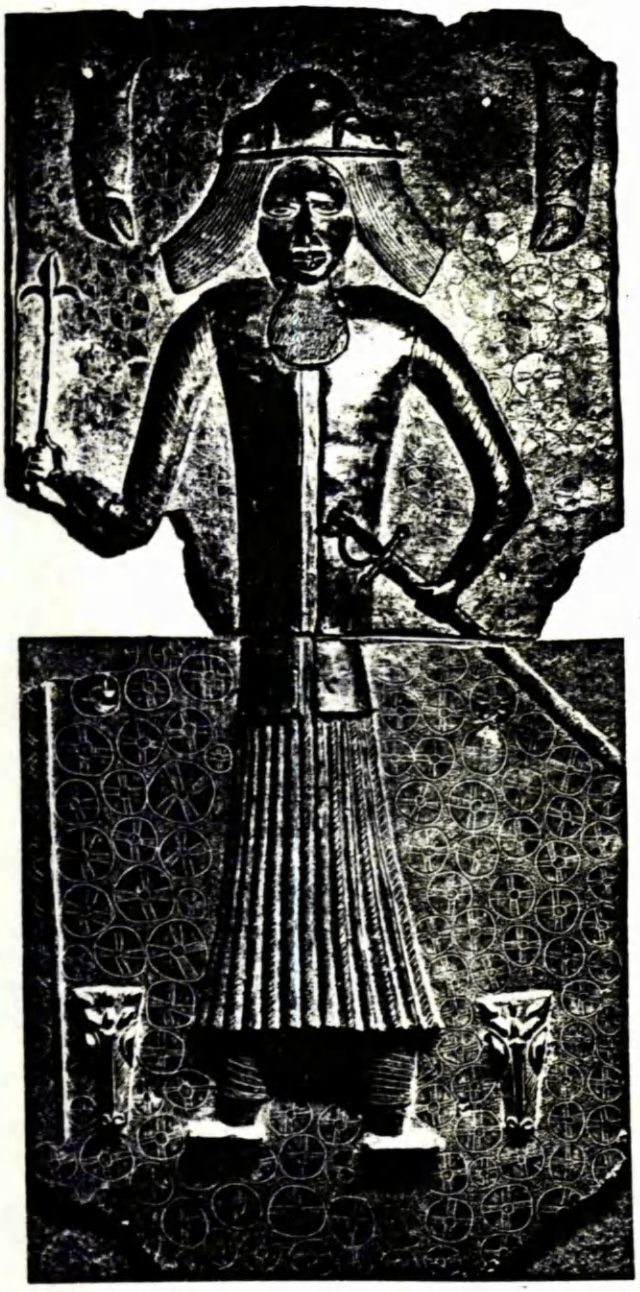
EW:14.BM:98.1-15.3,
43x17.5 cm.

EW:15.BM:1944.Af.4.10,
48.5x29.5 cm.

Abb. 43. Große, in zwei Stücken gegossene Platte, Europäer mit Spieß und Schwert. Original der oberen Hälfte in London, R. D. XII, 2, das der unteren Hälfte in Wien, 64718. Vollständiger Gipsabguß Berlin III. C. 12503; 37 × 78.8 cm. Etwa $^1/_5$ ($^{1}/_{11}$) d. w. Gr.

EW:13.from von Luschan
1919,Abb.43
(see p.9a.)

EW:16.Mus.für Völkerkunde
Wien,64799,46x34 cm.



EW:13a.BM:98.1-15.2,
38.5x35.5 cm.

EW:13b.Mus.für Volkerkunde,
Wien,no.64718;5861;
b4b97,38.5x37 cm.

EWW:1.III C 8362,48x30 cm.

EWW:4.III C 7656,49x17 cm.

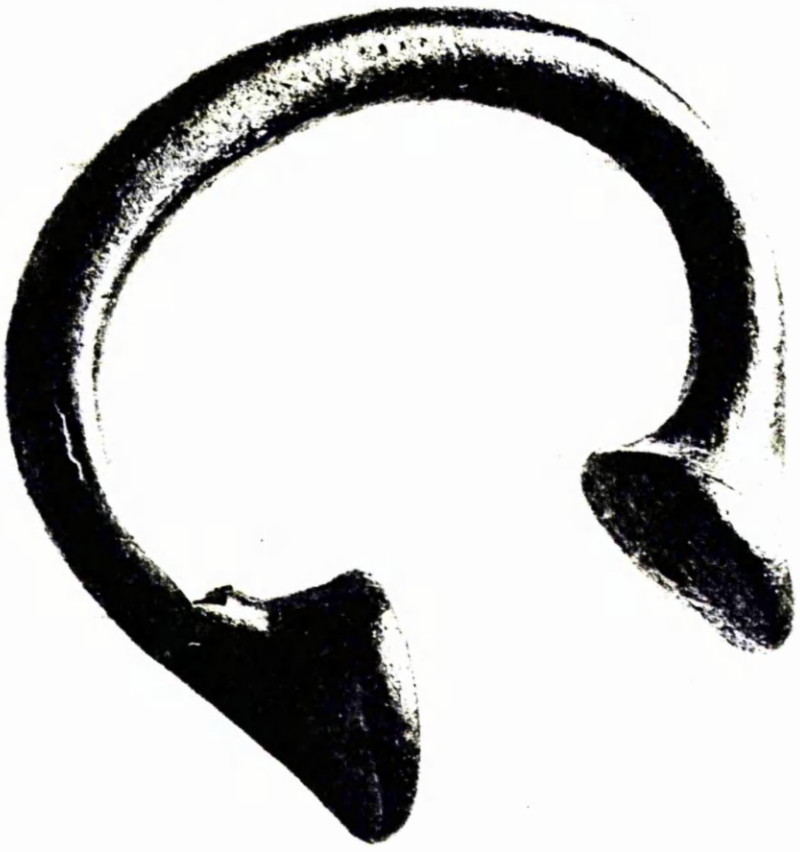
EWW:5.BM:99.7-10.1,36.5x15 cm.

EWW:2.III C 8366,45x29 cm.

EWW:7.Mus.für Völkerkunde Frankfurt,N.S.
8135,21x21 cm.,(Museum photo).

EWW:3.III C 8353,47x29 cm.

EWW:6.III C 8367,39.4x19.7 cm.



MAN:1.III C 23967, dia.6 cm., 1906.

EWW:8.Linden-Museum Stuttgart,no.5366,
42.5x30 cm. (Museum photo)

EWW:10.Staatlichen Museum Dresden,
41x17 cm.(Wolf 1972,Taf.1)

EWW:9.Städtisches Museum Braunschweig,
no.Vw 7.0-62/3,34.4x19.6 cm.

EO:2.BM:98.1-15.7,
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EO:1.BM:98.1-15.8,
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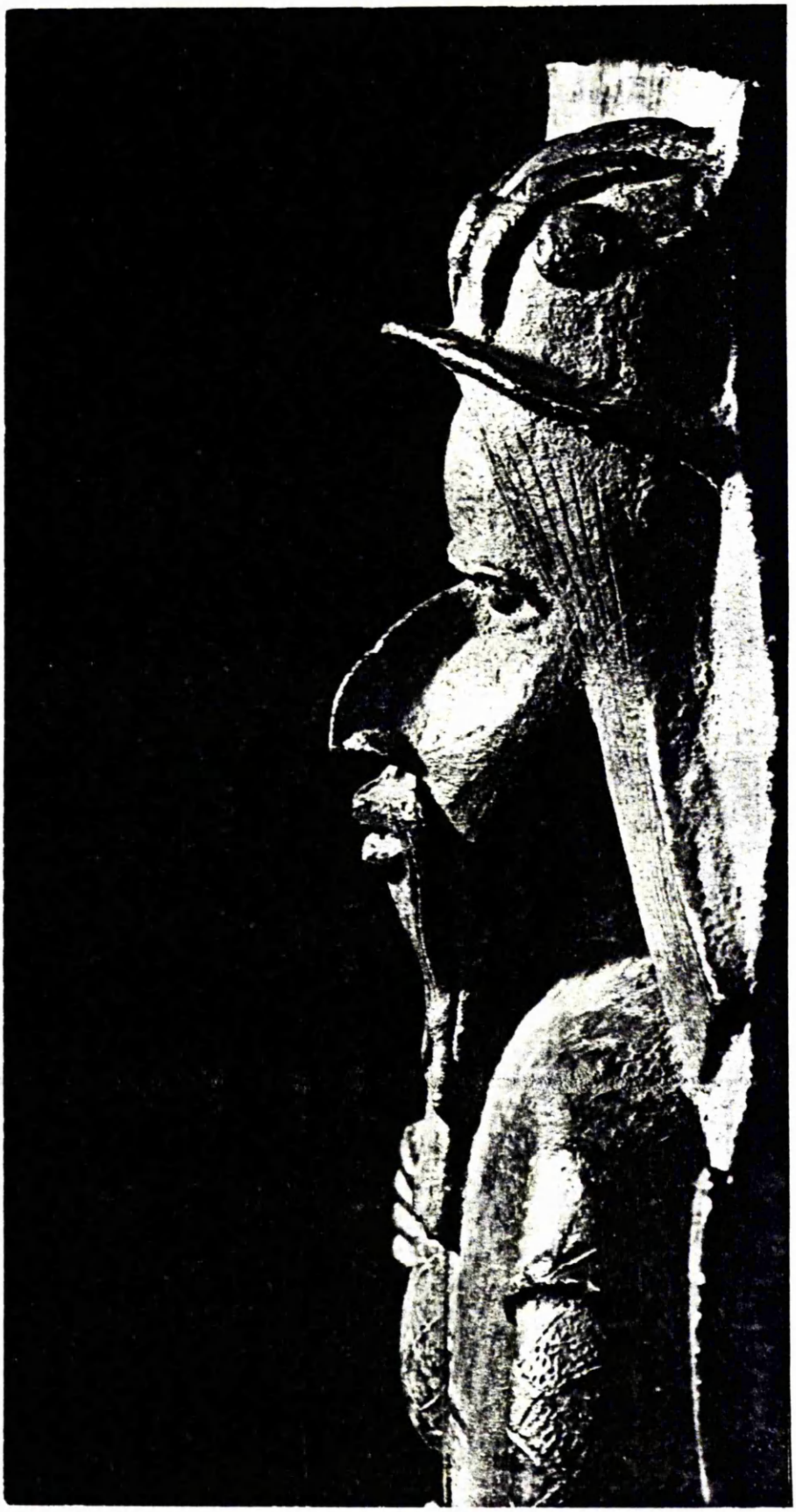
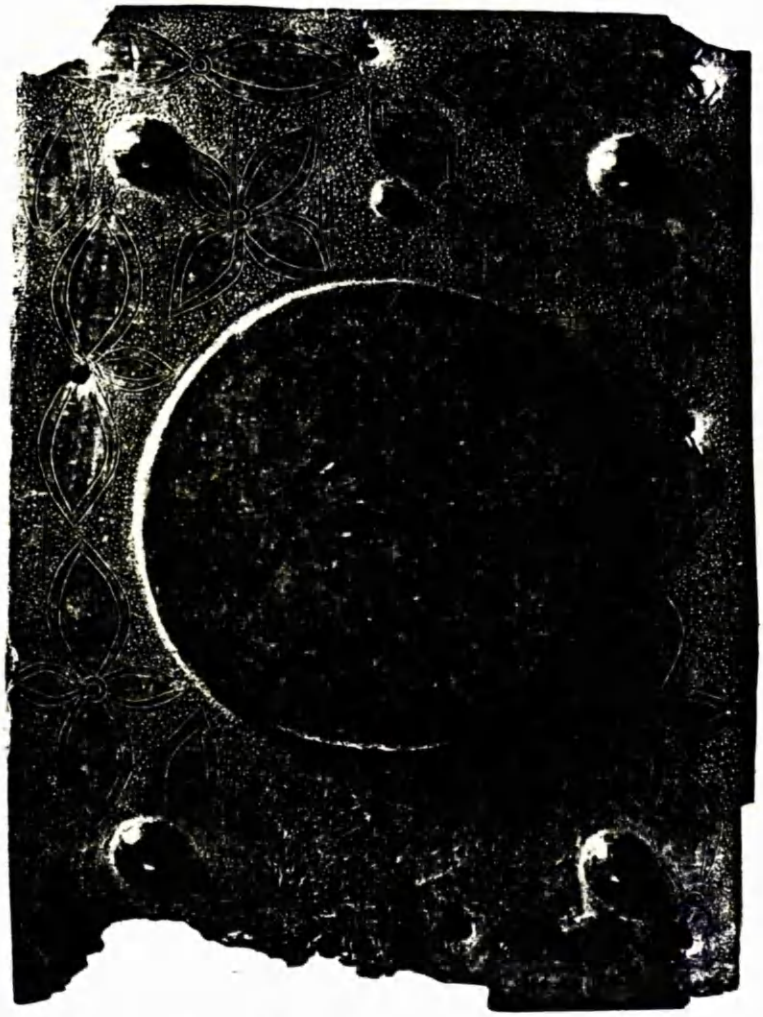


EO:3, Rautenstrauch-Joest Museums in Köln, Inv.no.2004, o.a.d. 52x30 cm., see Frölich 1966, Taf.LXV. (Museum photo)



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IO:8.BM:98.1-15.178
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IO:9.BM:98.1-15.179
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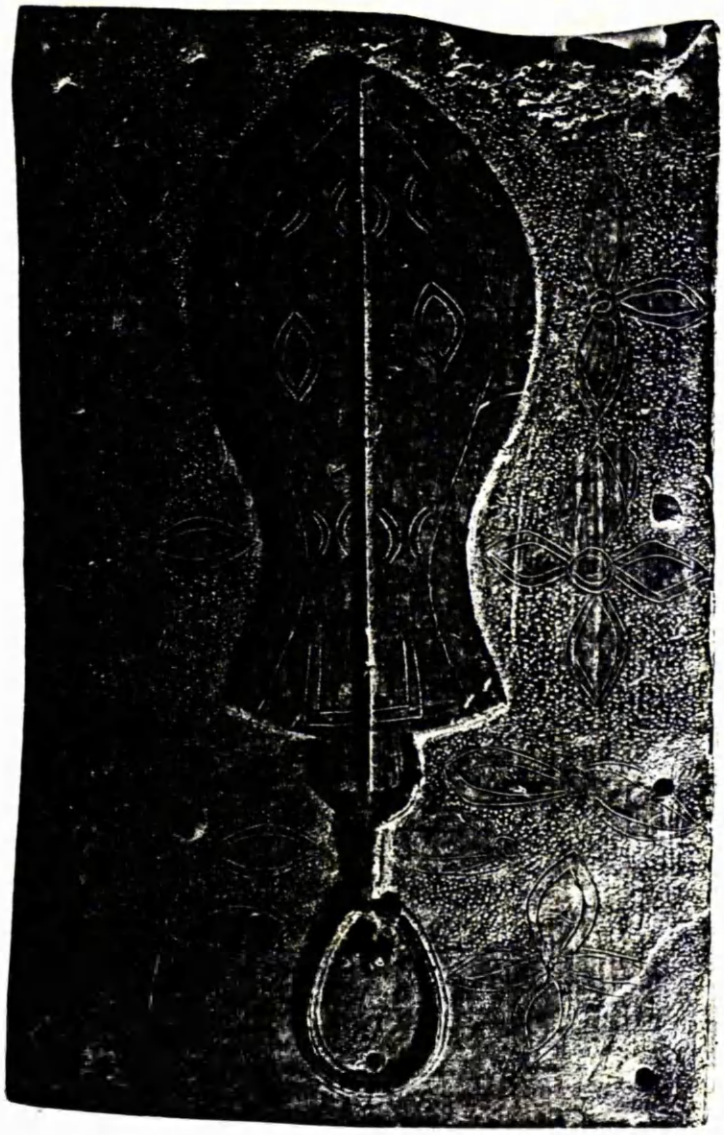
IO:3.BM:98,1-15.177, 36.5x18.5 cm.



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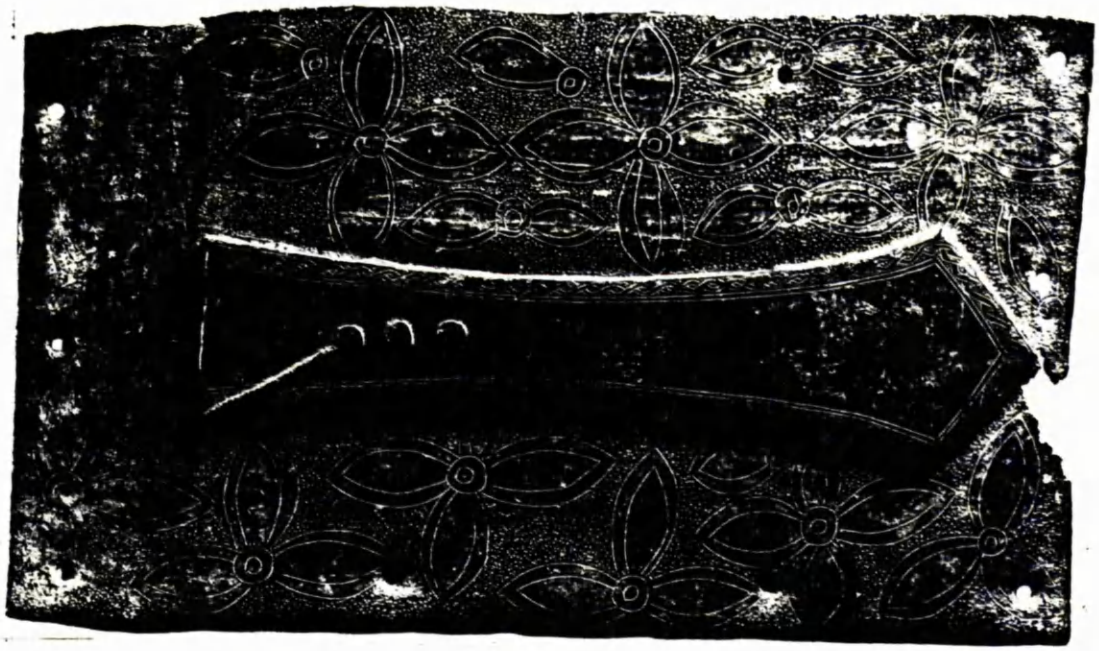

IO:4. III C 8446, 52x31 cm.

IO:5. Museum für Völkerkunde Frankfurt
no. MS: 1155, 57x39 cm. (Museum photo)

OP:7. Museum für Völkerkunde Hamburg
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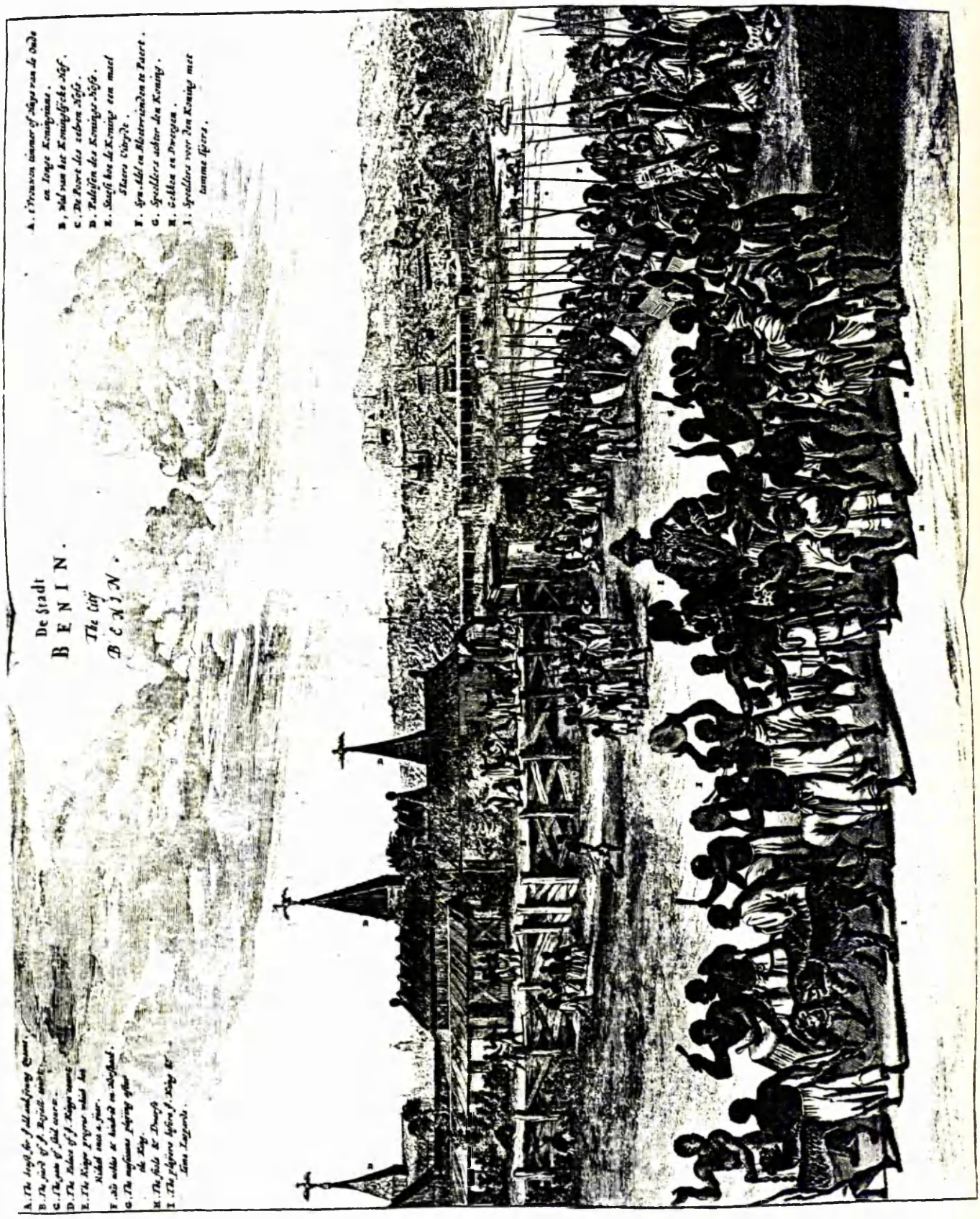
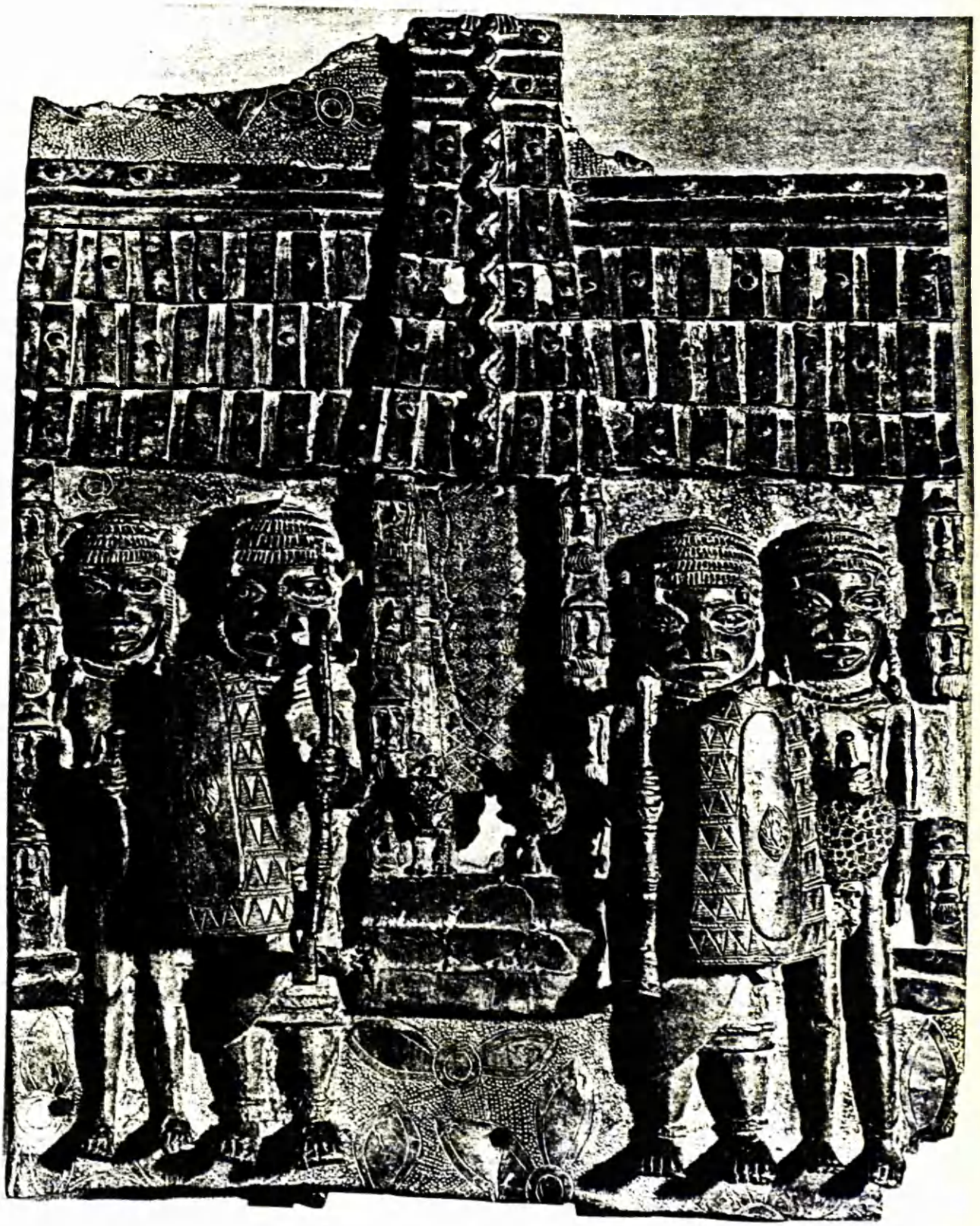


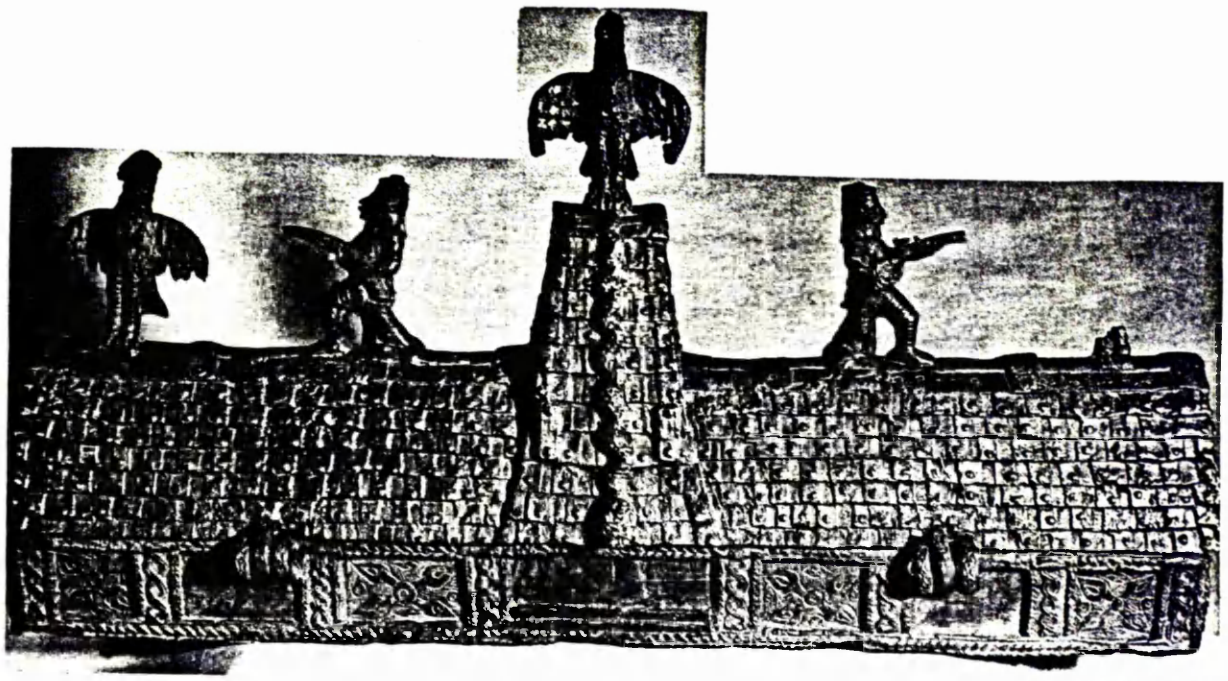
BC:1. Benin City,(from Dapper 1670,486)



OP:1.III C 8377,52x40 cm.

OP:1a. Reverse side of III C 8377.

OP:2.BM:98.1-15.46,54x38.4 cm.



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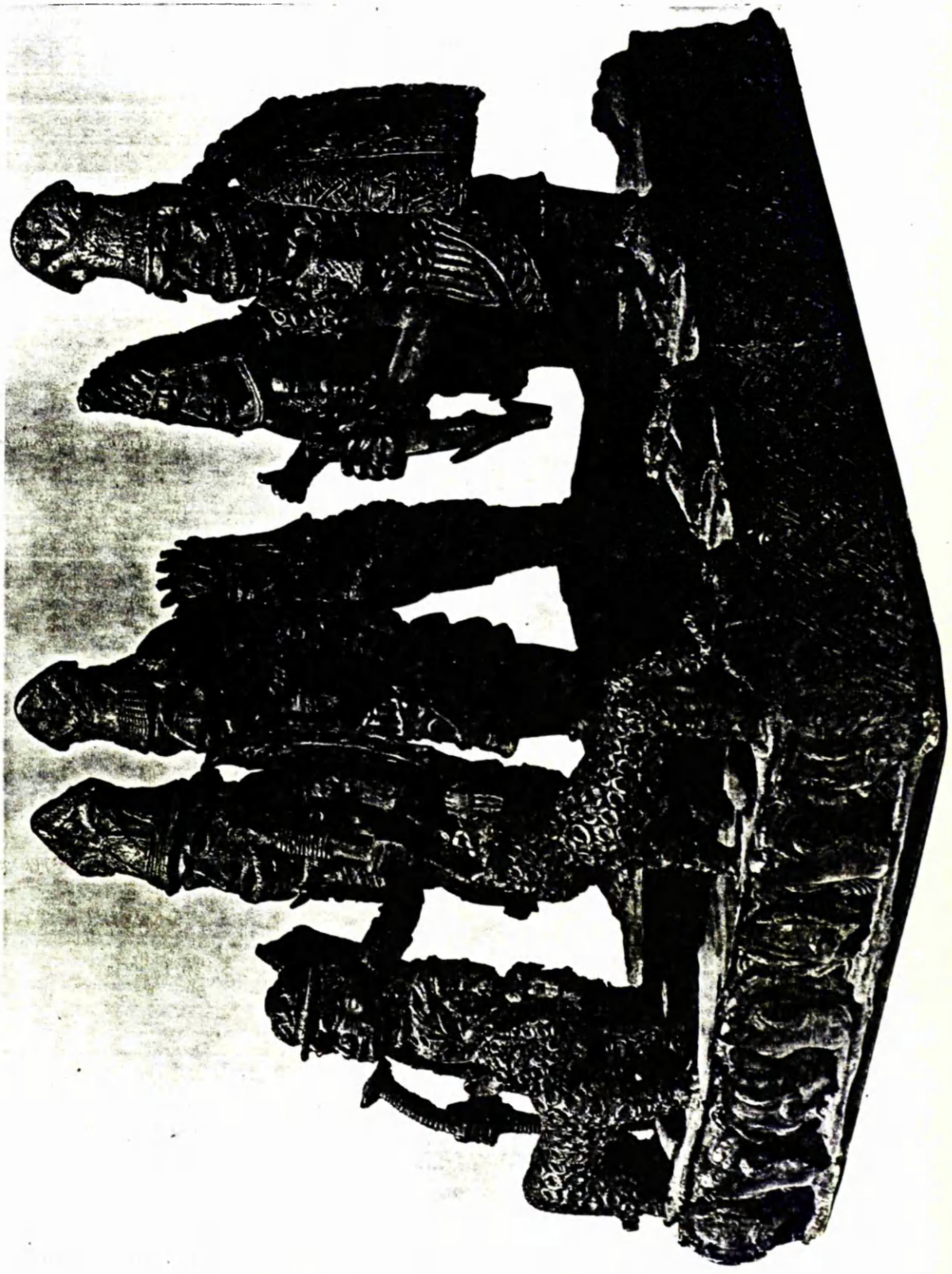


L:1.Museum für Völkerkunde München,
neg.nr.10154 a.,Cat.nr.11.2,
35x25 cm. (Museum photo)

L:2.III C 17118,L.19 cm.

L:4.Rijksmuseum Voor Volkenkunde Leiden,no. 1286-3,37.5x17 cm., 1800 gr.(Mus. photo)

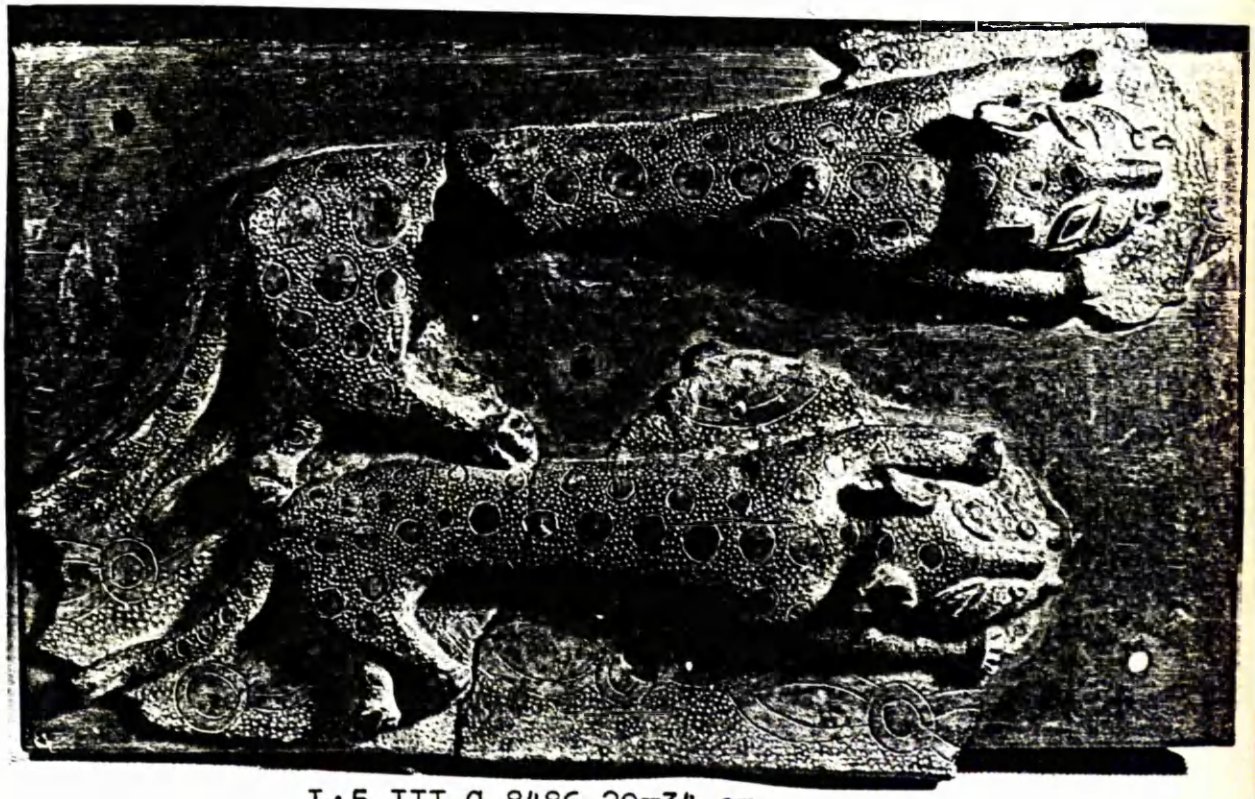
L:3. III C 27485,55x39 cm.

L:3a. Reverse side, III C 27485

L:6. Linden-Museum Stuttgart, no.5380, 31x39 cm. (Museum photo)

L:8. BM:98.1-15.199, 19.2x45 cm.

L:7. Museum für Völkerkunde München, neg.no. 14597, cat.no.99.8, 51.5x29 cm., 12.5 kg. (Museum photo)



L:5.III C 8486,20x34 cm.

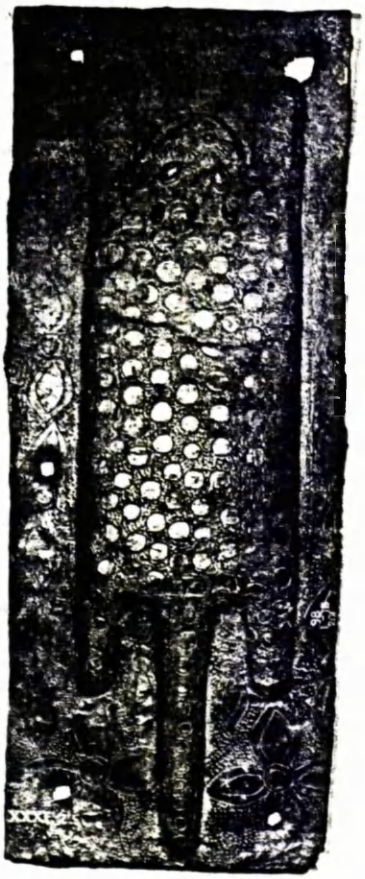
L:9.BM:98.1-15.200,17.5x34 cm.

L:10. BM: 98.1-15.171, 49x 35.5 cm.

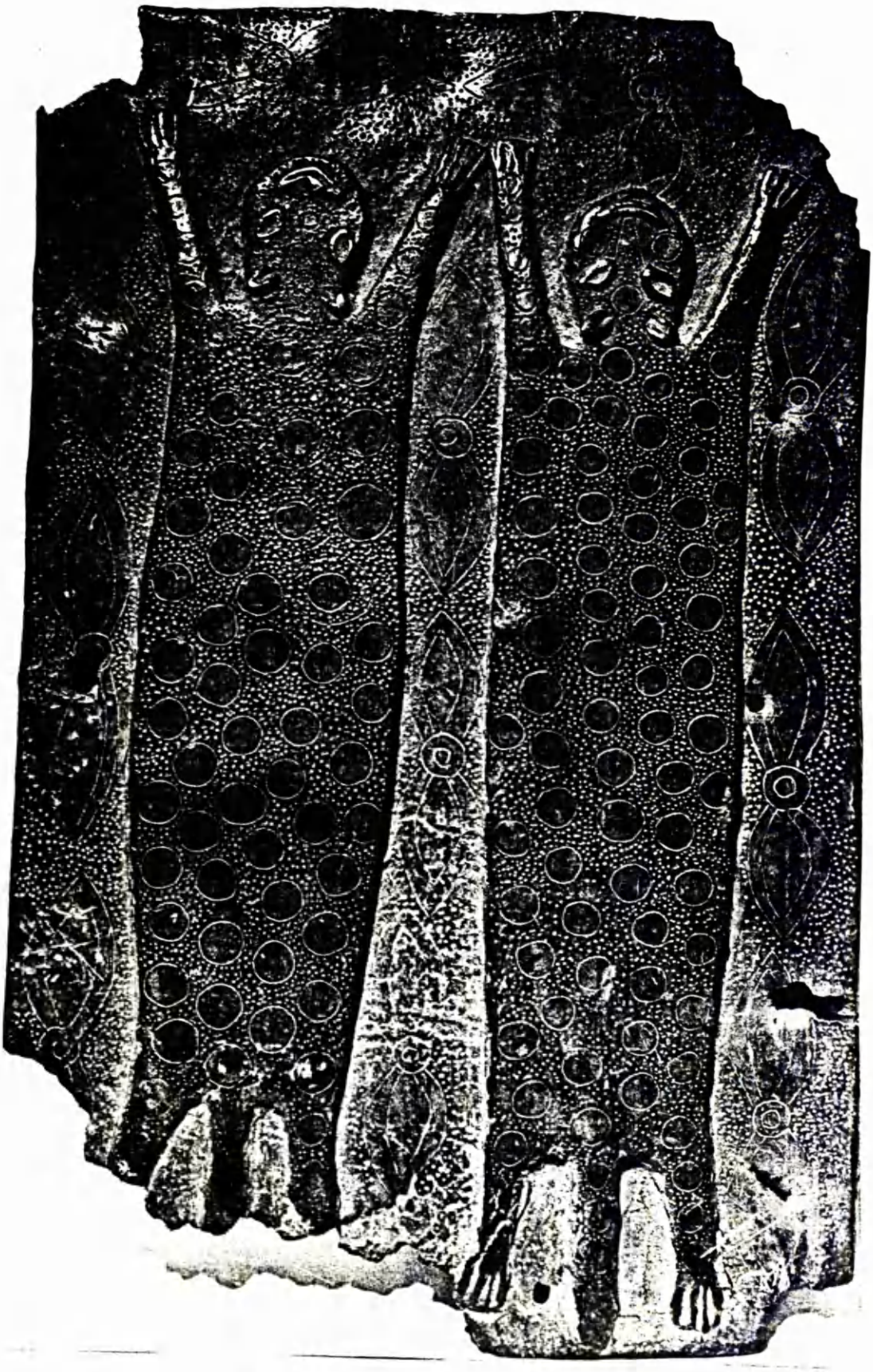
L:11. Museum für Völkerkunde Frankfurt, 44.5x18 cm. (Museum photo)

L:12. III C 8436, 36x37 cm.

L:13.Pitt Rivers Oxford,
43.5x29.8 cm.(Mus.photo)



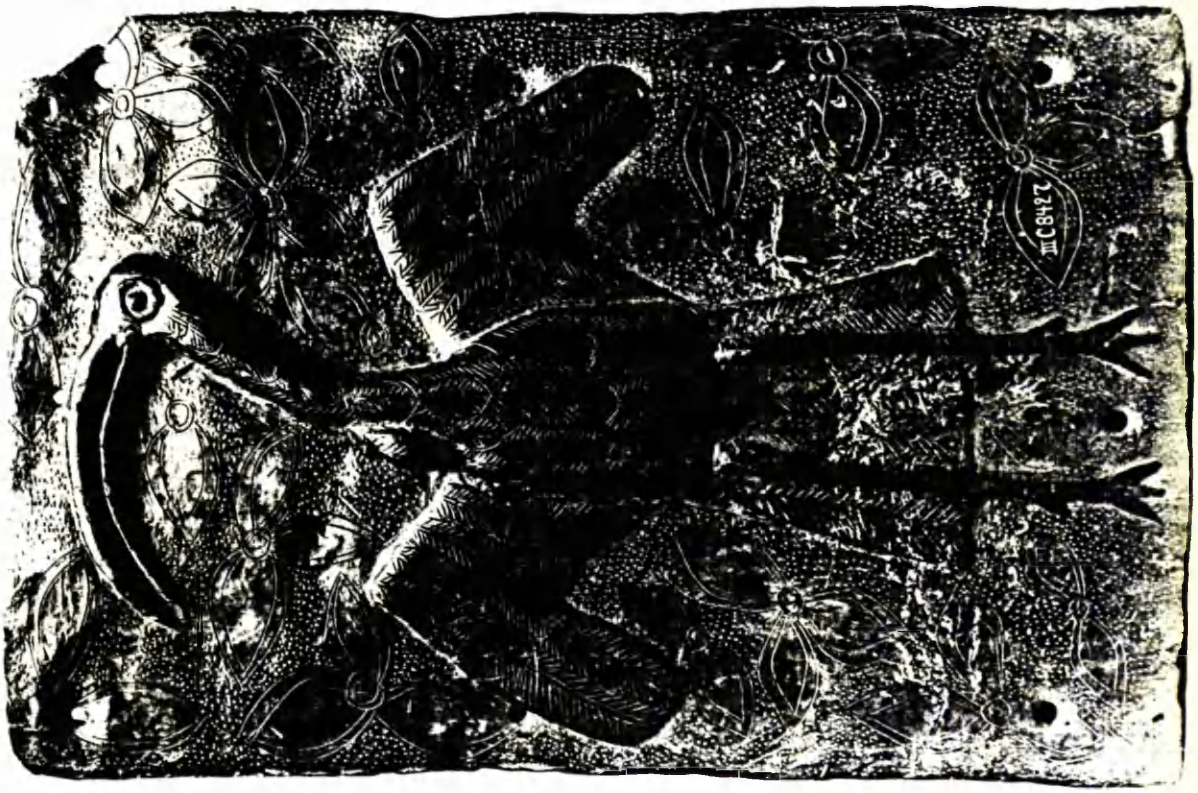
L:15.BM:98.1-15.201,44x17 cm.

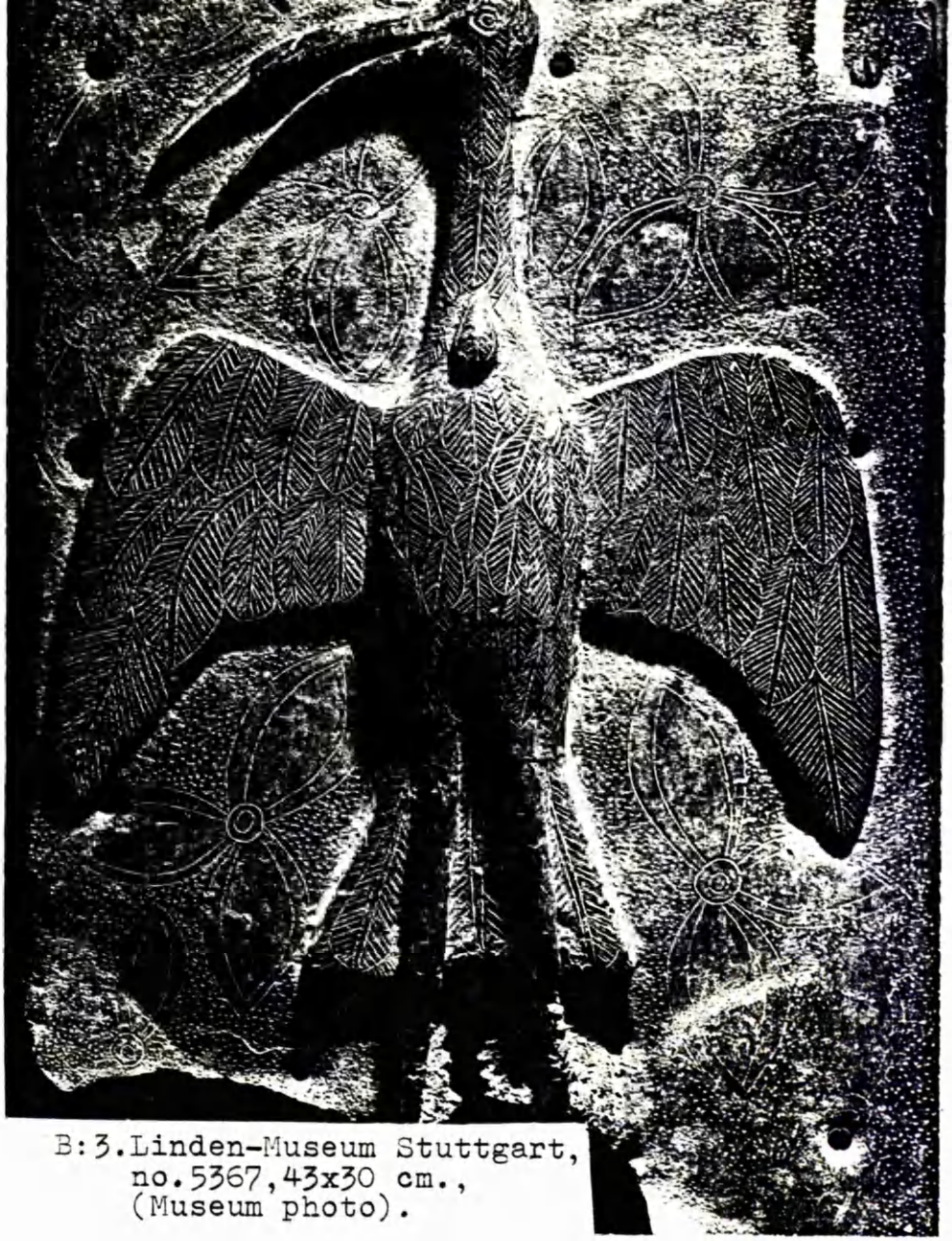


I:14. Rautenstrauch-Joest-Museums Köln,
48x29.5 cm. (Museum photo)

B:1.III C 8429,42.5x20 cm.

B:4.III C 8427,48x32 cm.





B:3.Linden-Museum Stuttgart,
no.5367,43x30 cm.,
(Museum photo).

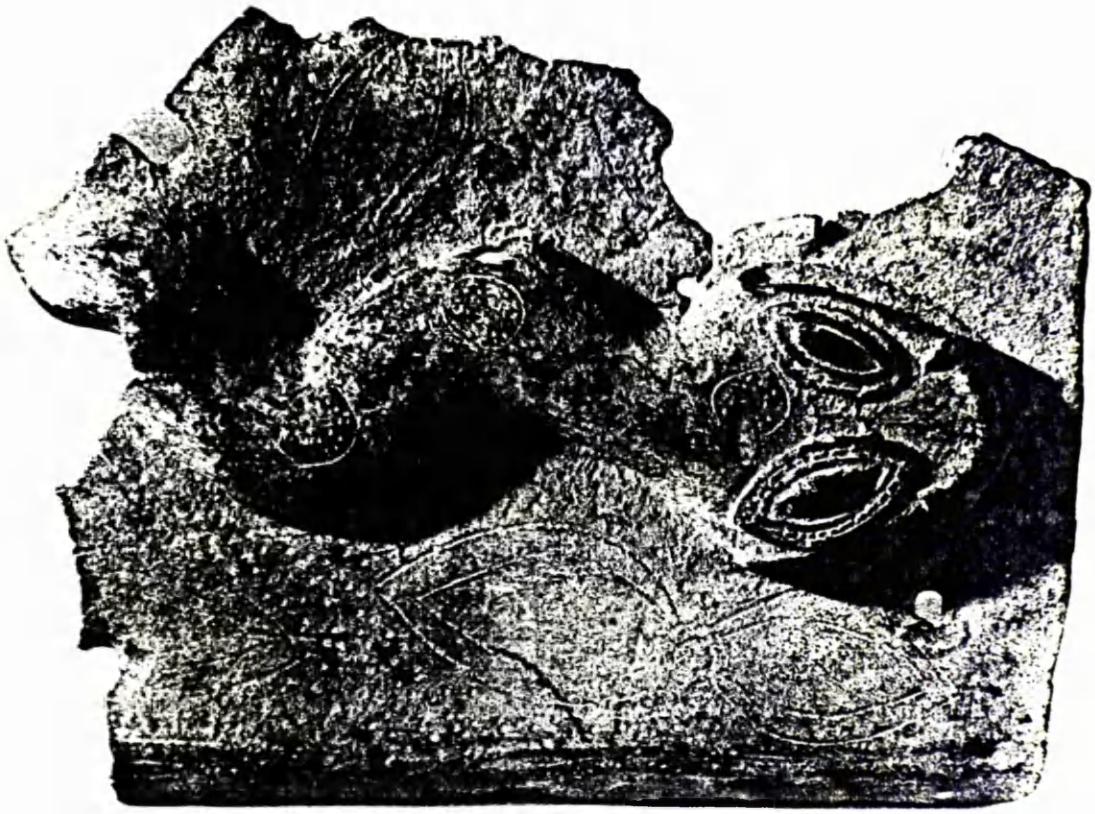
B:4.Mus.für Völkerkunde Wien,no.unknown,
40x17.5 cm.

B:5.III C 12535,
h.26 cm.

B:6.III C 10878,h.26
cm.

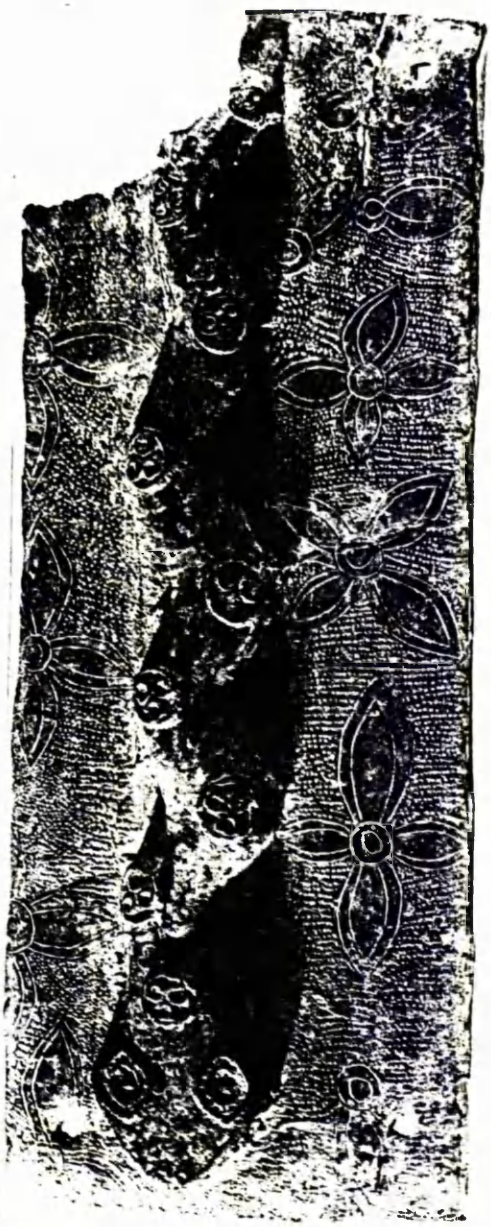
P:1.BM:1908.12-5.3,
42x17.5 cm.

P:2.BM:98.1-15.203,
43.5x17 cm.



P:3.Pitt Rivers Oxford,1899-86.12,
19x15 cm. (Mus.photo)

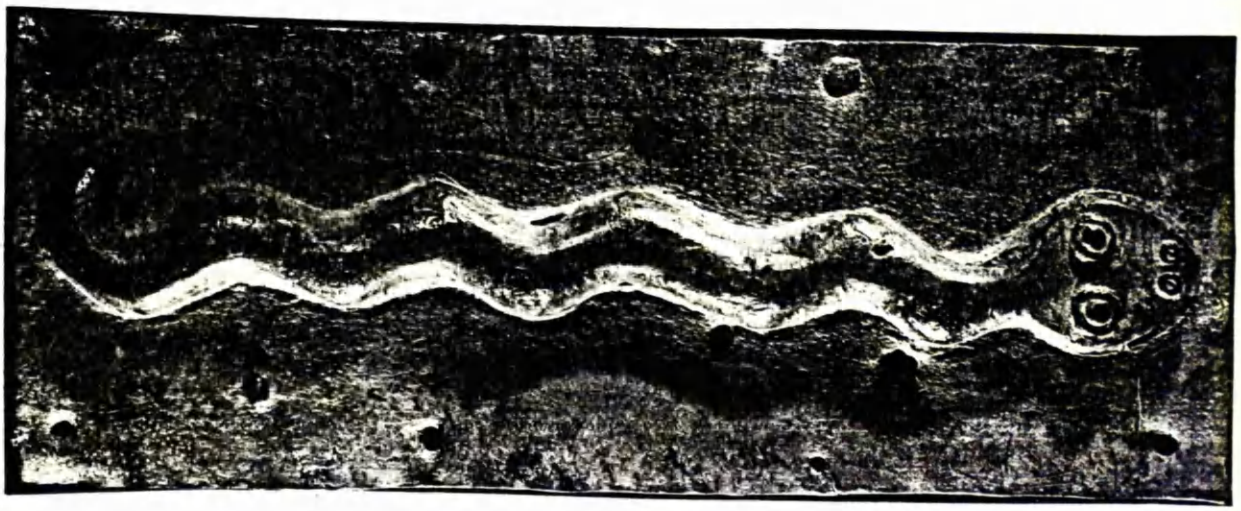
P:5.Übersee Museum Bremen, B6704,34.5x15 cm.,1.53 kg. (Museum photo)



P:6.Pitt Rivers Oxford, 1908-41.3,42.5x16.5 cm., (Museum photo)

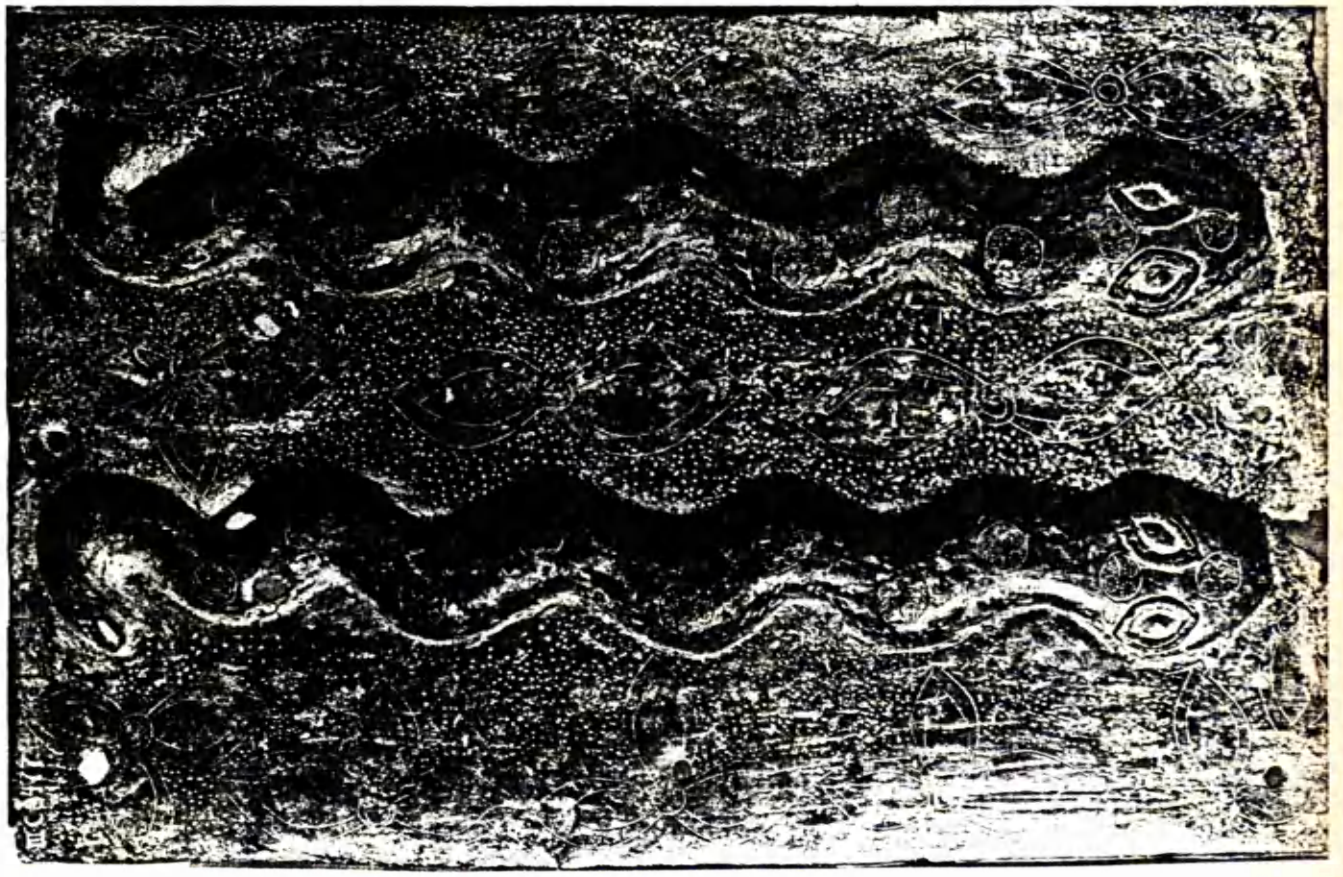
P:4.III C 8249 44x18 cm.

P:8.Rijksmuseum Voor Volkenkunde Leiden,
1335-3,43.5x30.5 cm.,3.3 kg.
(Museum photo)

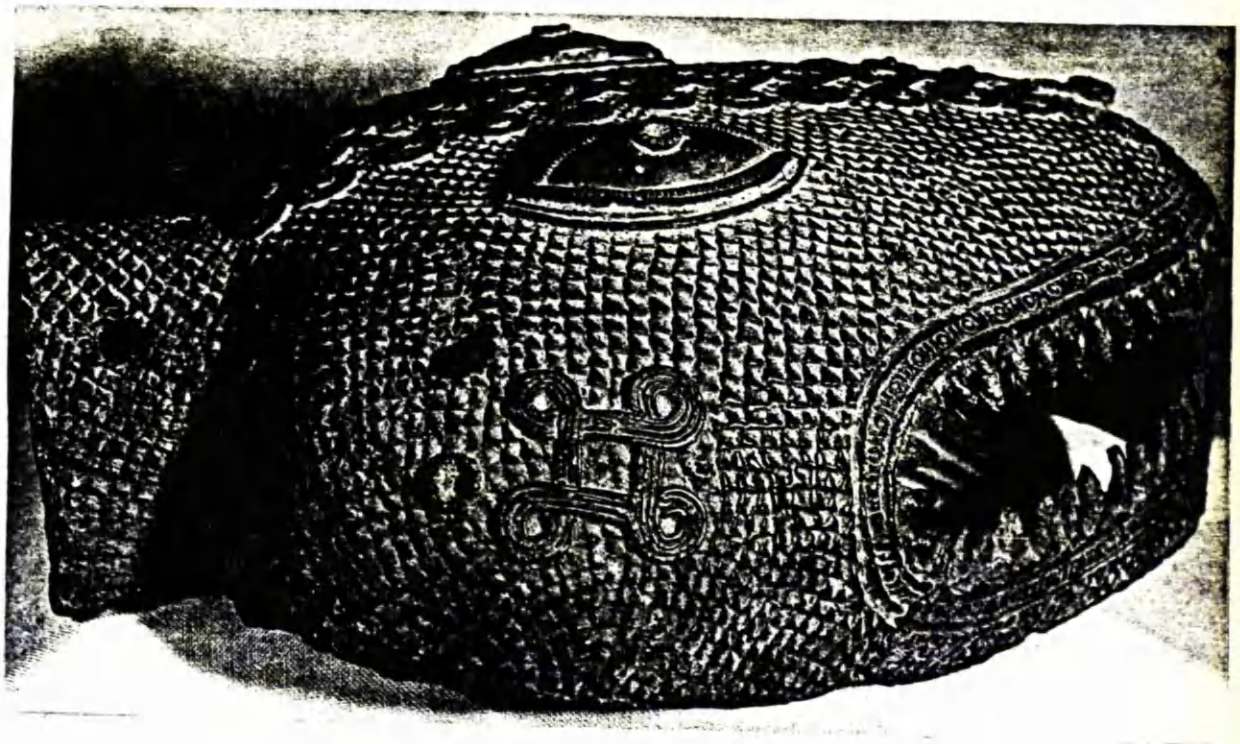


P:7.Linden-Museum Stuttgart,5406,46x18 cm.,
(Museum photo)

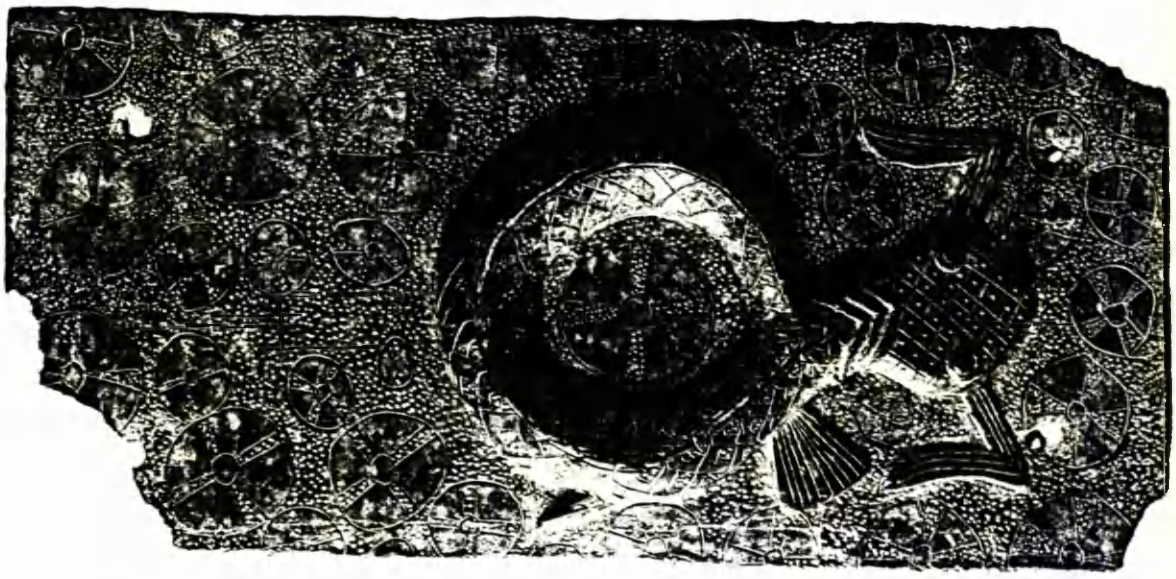
P:9.Field Museum Chicago,neg.99431,FMNH cat. no. 91246,50x30.2 cm. (Museum photo)



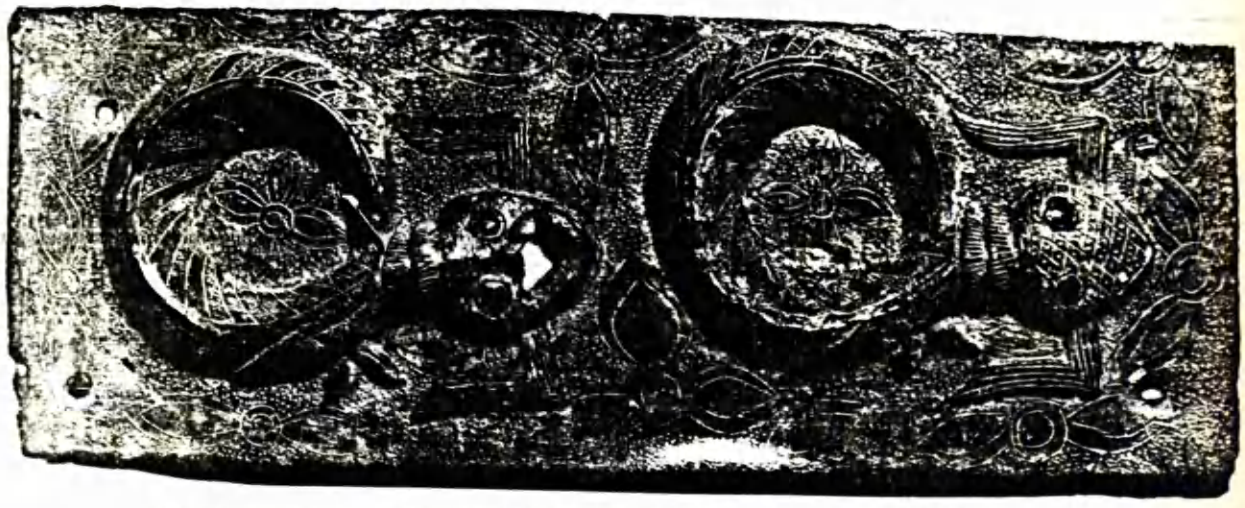
P:10. III C 8477,47x30 cm.



P:11.III C 8215,49x38 cm.



FS:1.III C 8468,38x18 cm.

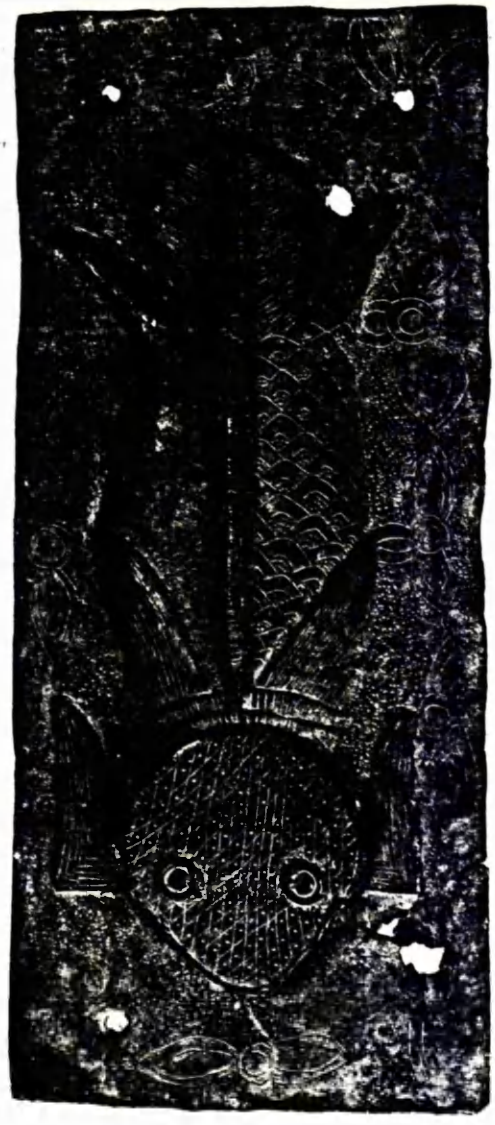


FS:2.Museum für Völkerkunde Hamburg,C 2388,

FS:3.III C 8459,45x18 cm.

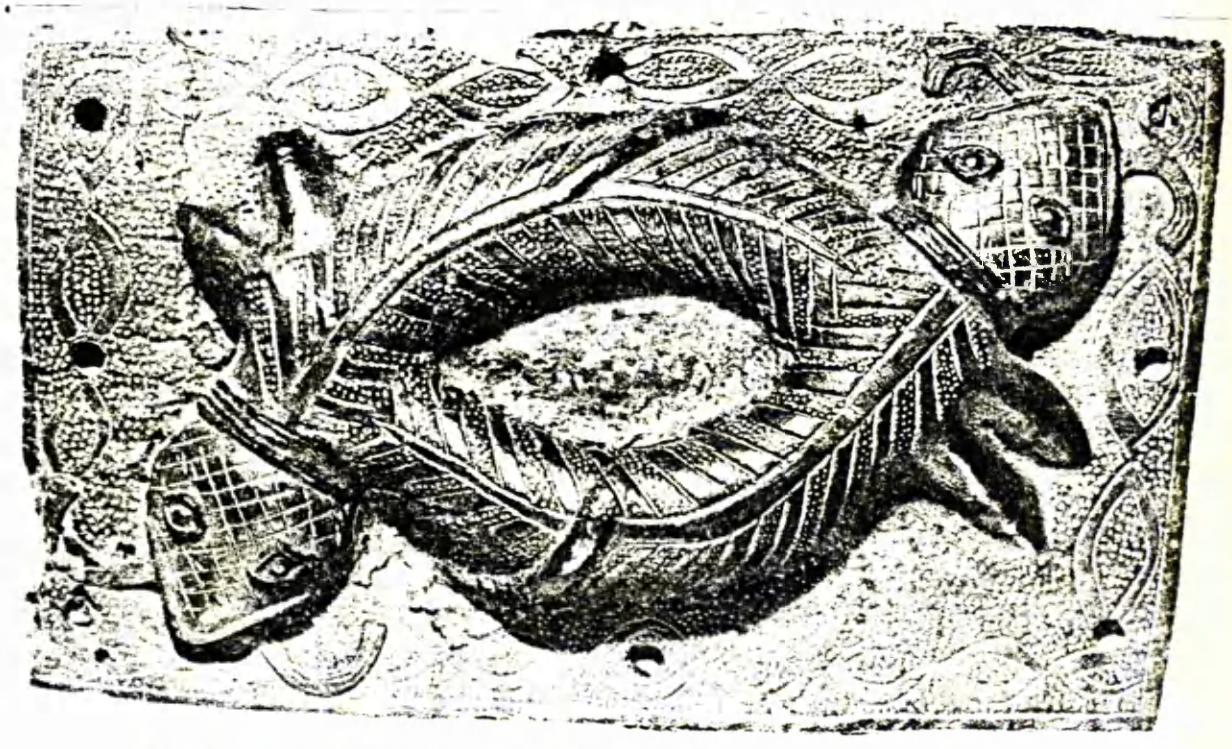
FS:5.Field Museum Chicago,
neg.99430,FMNH 8259,
39.4x16.5 cm.(Mus.photo)

FS:4.Field Museum Chicago,
neg.99501,FMNH 91264,
30.8x15.9 cm.(Mus.photo)



FS:8.III C 8268,44.5x18 cm.

FS:7.BM:98.1-15.192,
46x17 cm.



FS:6.Cambridge,1902 E 447,30x17.3 cm.

FS:9.BM:98.1-15.193,47.5x18 cm.

FS:10.BM:98.1-15.188,42.5x18 cm.

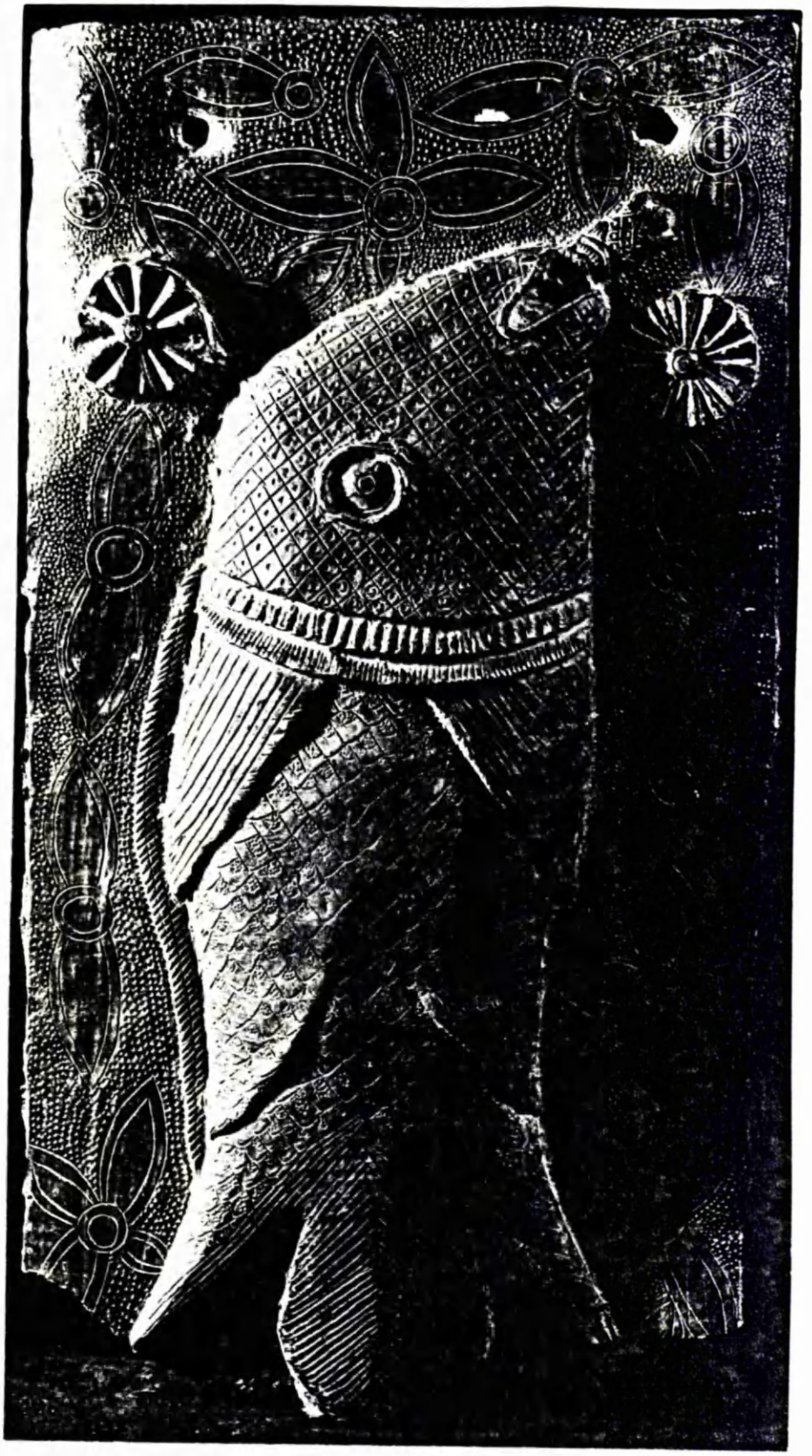
FS:11.BM:98.1-15.189,45x19 cm.

FS:12.III C 8250,47x20.5 cm.

FS:13.Pitt Rivers Oxford,1906.39.2,
37.7x15.1 cm., (Museum photo)

FS:14.Field Museum Chicago,neg.99430,
FMNH 91243,46x15 cm.(Museum photo)

FS:15.Field Museum Chicago,neg.99421,
FMNH 89770,36.8x18 cm.(Museum photo)

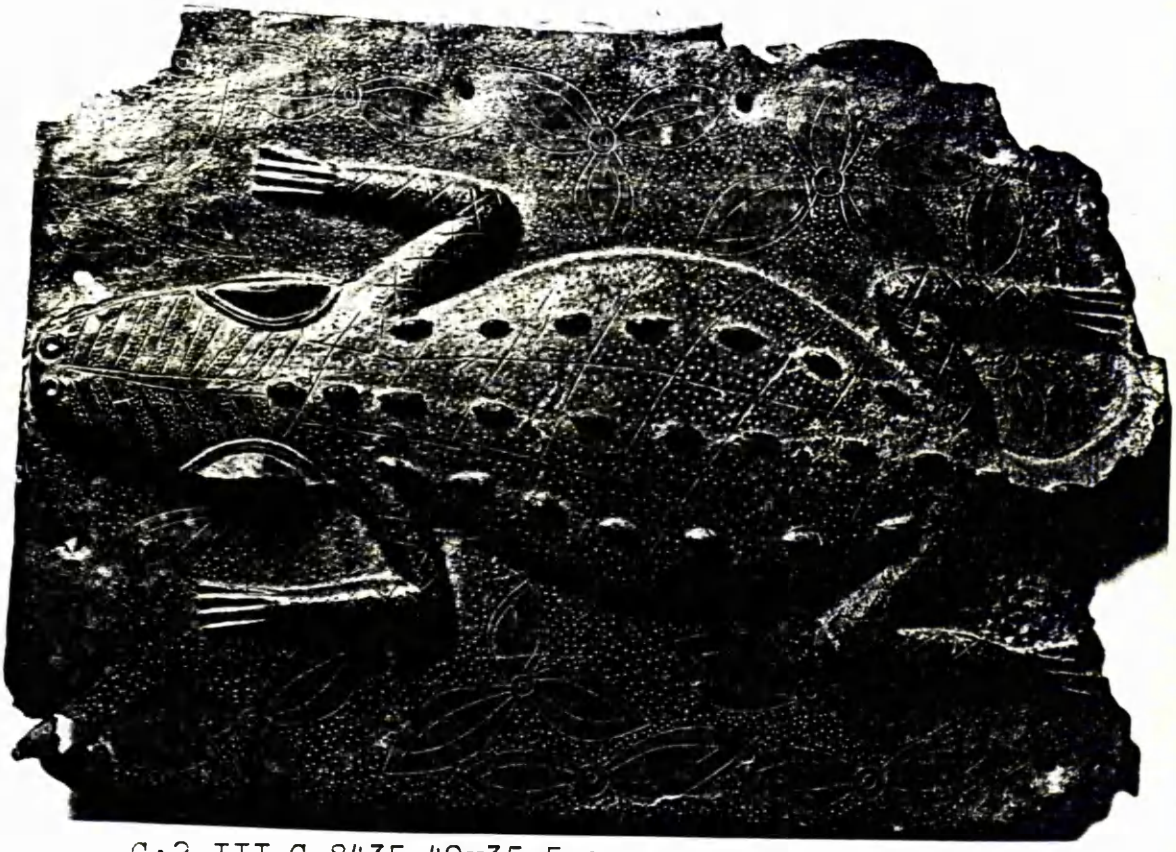


FS:16.Rautenstrauch-Joest-Museums,
5252,20x37 cm. (Museum photo)

FS:17.III C 8267,17.5x44 cm.

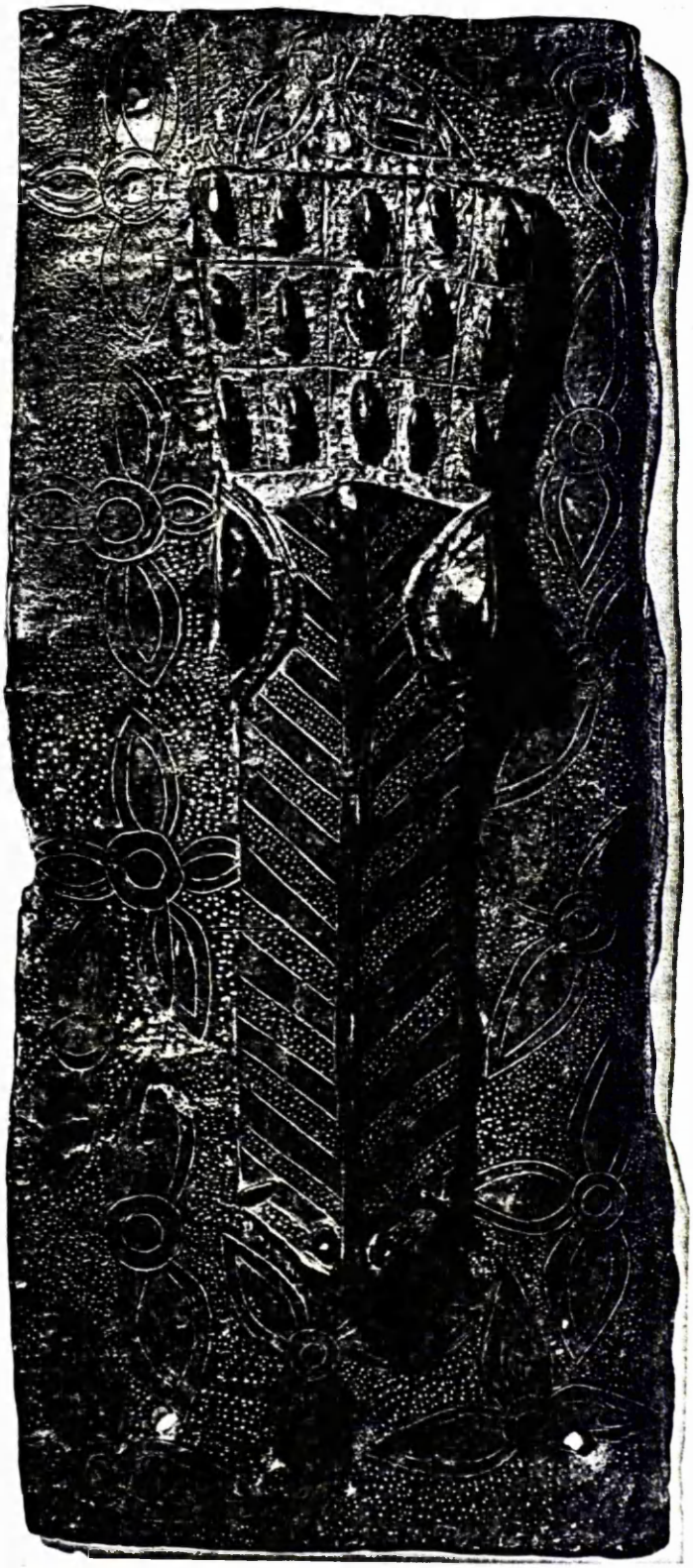
FS:18.III C 8269,12x46 cm.

C:1.98.1-15.70, 45x35.5 cm.

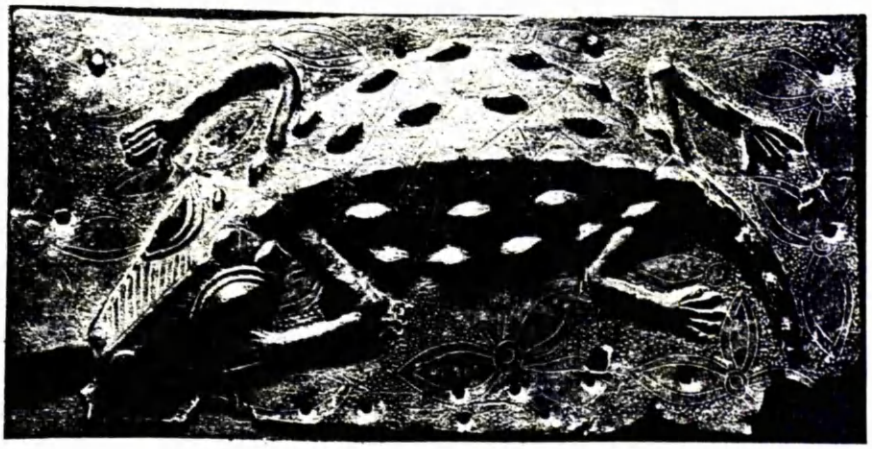


C:2.III C 8435,49x35.5 cm.

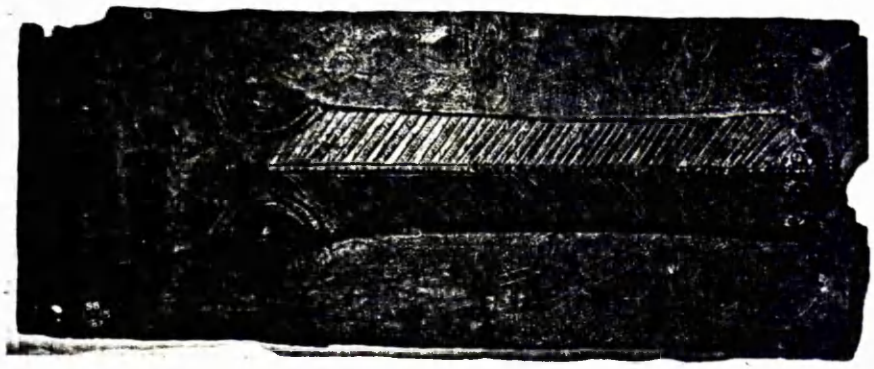
C:4,III C 8433,48x30 cm.



C:5.Museum voor Land-en Volkenkunde
Rotterdam,15985,45.3x19.5 cm.,
(Museum photo)



C:3.Mus.für Völkerkunde Wien,no.67797, 31.5x16.5 cm.



C:6.BM:98.1-15.182,44.5x17.5 cm.

C:7.Mus.für Völkerkunde Hamburg,C4535 (see von Luschan 1919,Abb.403),35 x 16.5 cm.

C:8. Rijksmuseum voor Volkenkunde Leiden, no.1335-1, 43.5x30.5 cm. (Museum photo).

C:9. Übersee-Museum Bremen, no.13-6706, 22.5x20x2 cm., 850 gr. (Museum photo)

H:1.BM:1901.4-20.1,
41.5x18.5 cm.

SK:1.BM:98.1-15.175,
45.5x18.5 cm.

CWS:1.BM:98.1-15.139,
40x18.5 cm.

CWS:2.Mus.für Völk.Hamburg,
C 4044,48.5x16.5 cm.

Pl: 2. Mus. für Völkerkunde Freiburg, I-54, 49x 16 cm. (Mus. photo)

Pl: 1. BM: 98.1-15.173, 50x18 cm.

Pl: 3, 4. from Von Luschan 1919, Abb. 388, 389.

Pl: 6. BM. 98.1-15.174, 35x19 cm.

Pl: 5. III C 8383, 49x35.5 cm.

Θ:1.BM:98.1-15.30,40x33 cm.

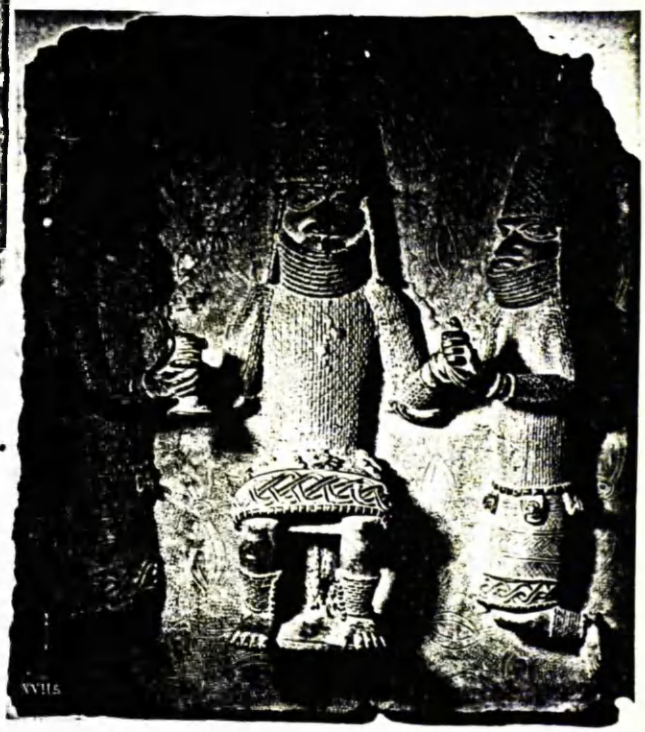
O:2.BM:98.115.31,47x32.5 cm.

O:3.BM:98.1-15.32, 43.5x18.5 cm.

O:4.BM:98.1-15.29,46x36.5 cm.

O:5.BM:98.1-15.28,46x 38.5 cm.

0:6BM:98.1-15.34,41.5x36.5 cm.



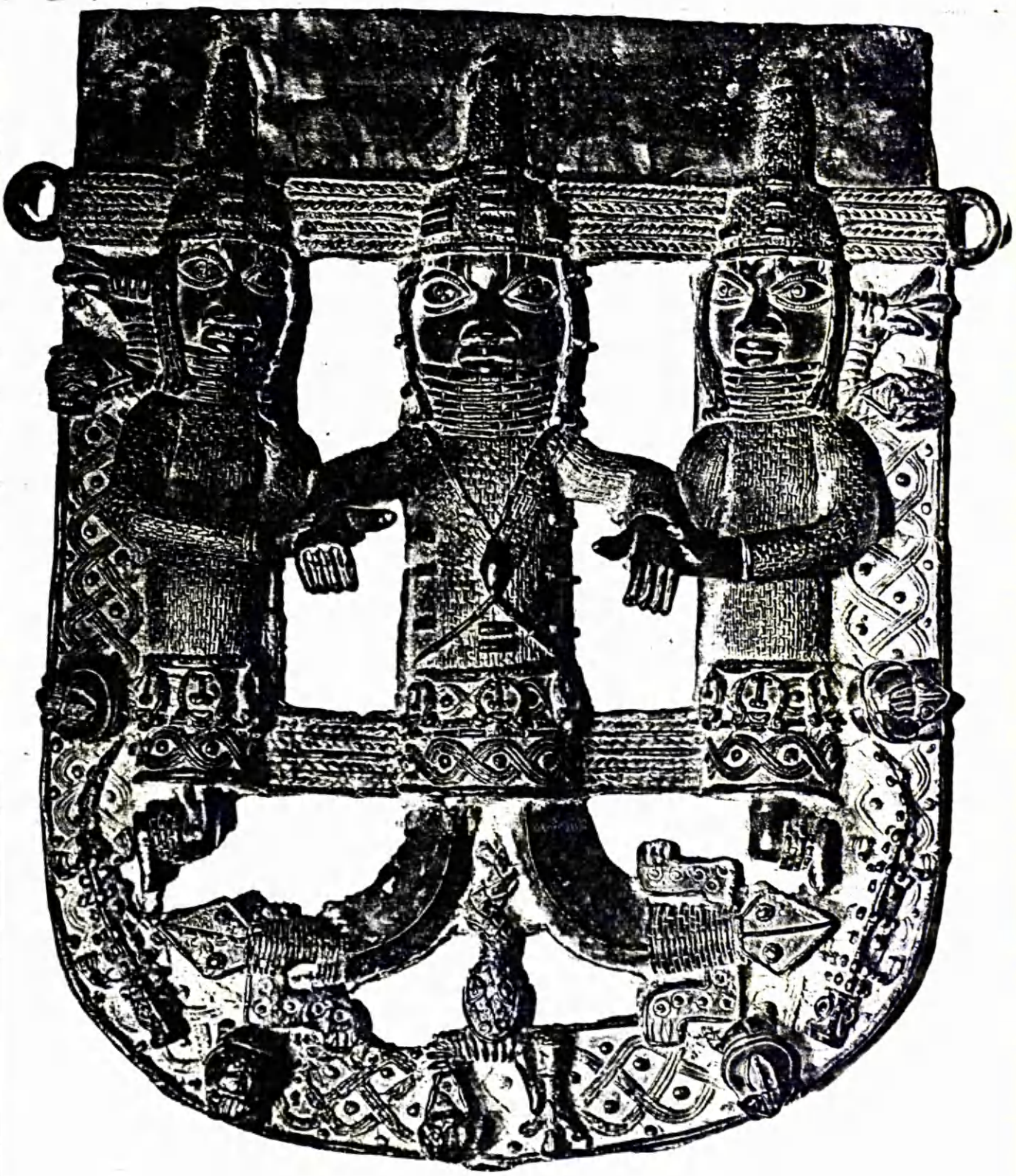
0:8.BM:98.1-15.26,44x38 cm.

0:7.BM:98.1-15.27,46x32.5 cm.

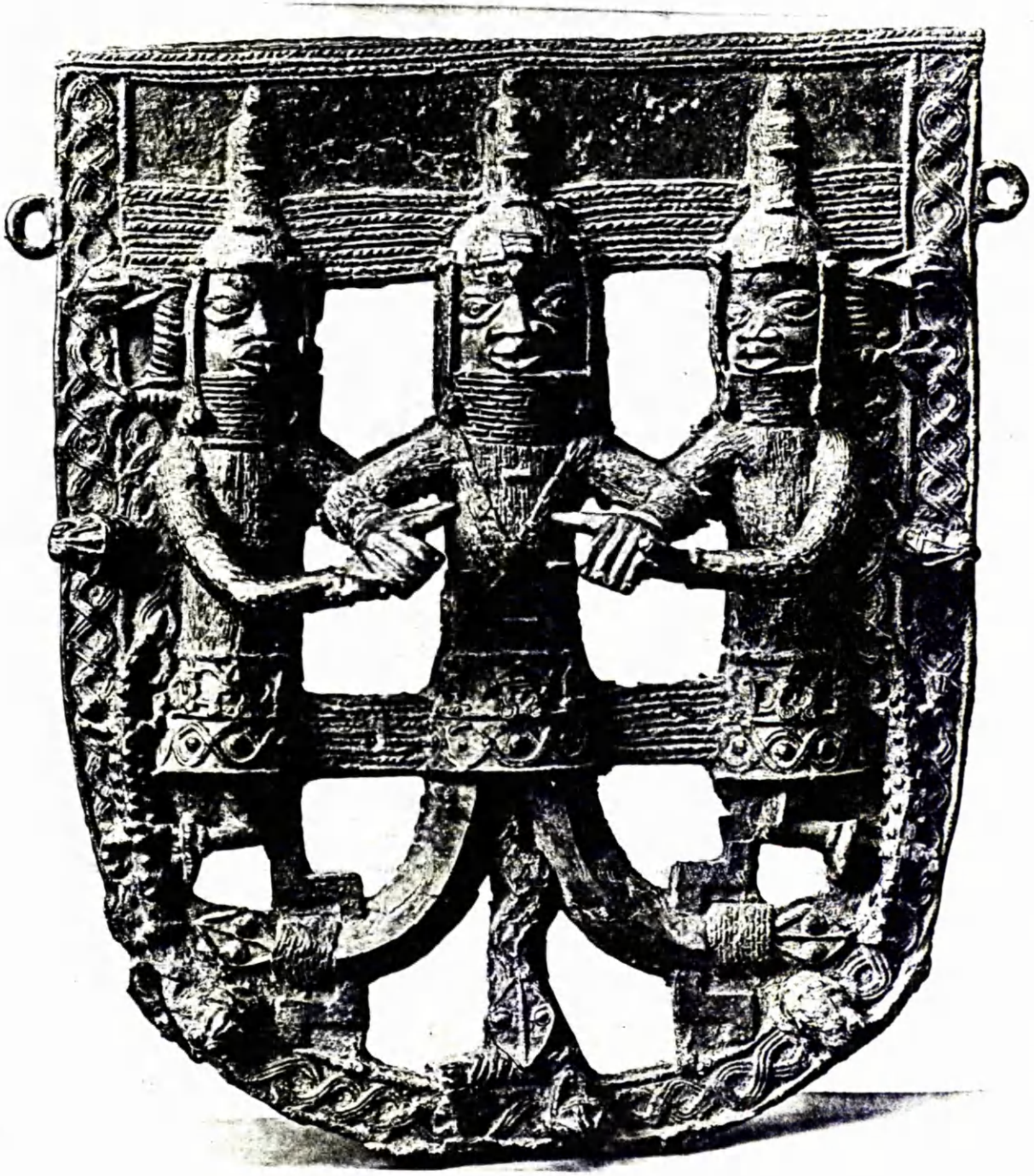
0:11.BM:98.1-15.23,42.5x37.5 cm.

O:9.Mus.für Völkerkunde Hamburg,
C 2894,50.5x43.5 cm.

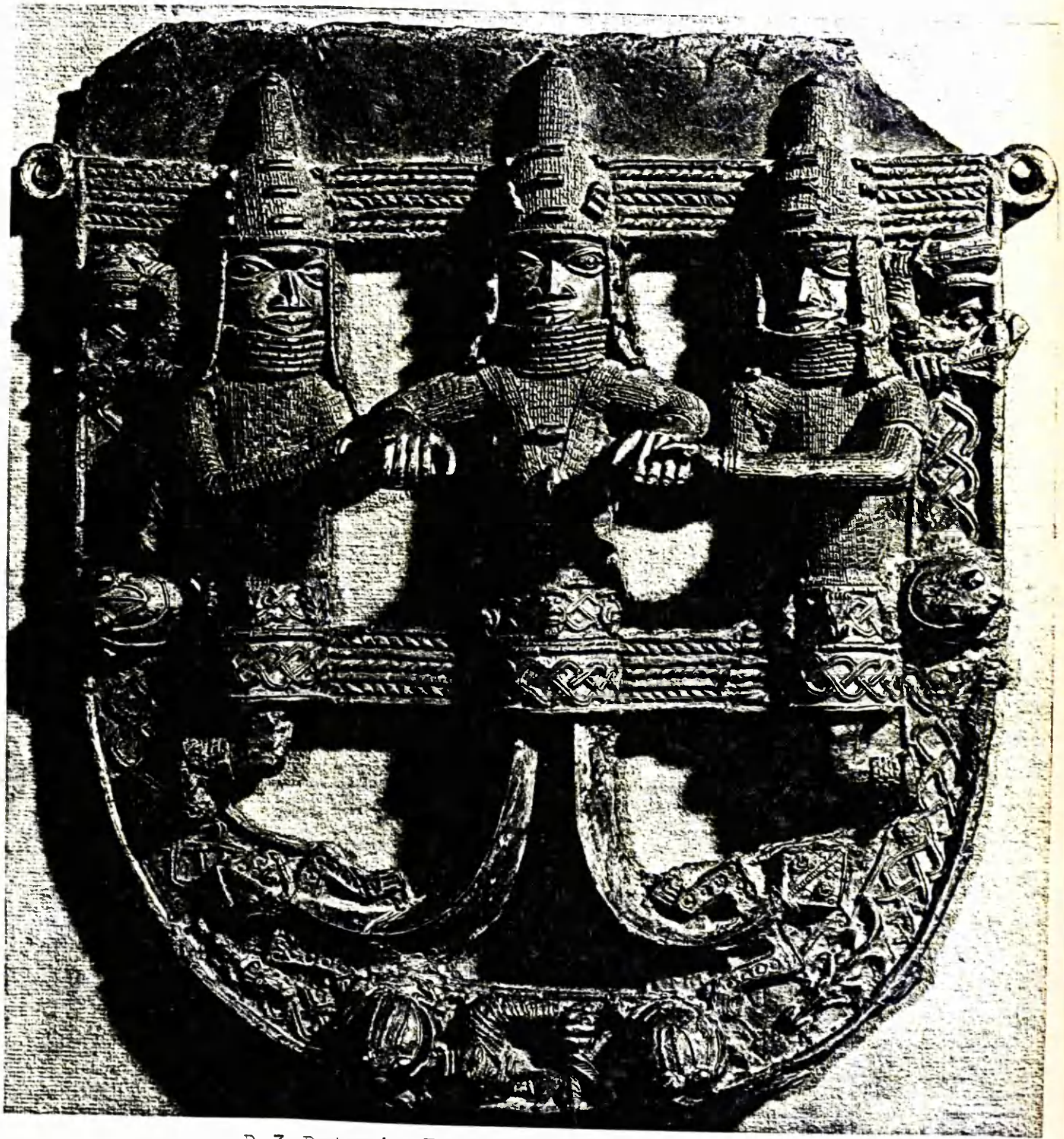
O:10.Pitt Rivers Oxford,1907-64.1,47x
39.4 cm. (Museum photo)



D:1.BM:NN 129,39x32 cm.



D:2.III © 7653,42x33 cm.



D:3. Detroit Institute of Arts, neg. 17185,
acc.no.72.435, 40x37.8 cm. (Museum photo)

WS:3.BM:98.1-15.47,43x20 cm.

WS:1.BM:98.1-15.48,41.5x39 cm.

WS:2.BM.98.1-15.49,39.5x38.5 cm.

Abb. 387. Einbringung eines Gefangenen. P. R. 5. 1/6 d. w. Gr.

WS:4.from von Luschan 1919, Abb.387,see Pitt Rivers 1900,Pl.2.

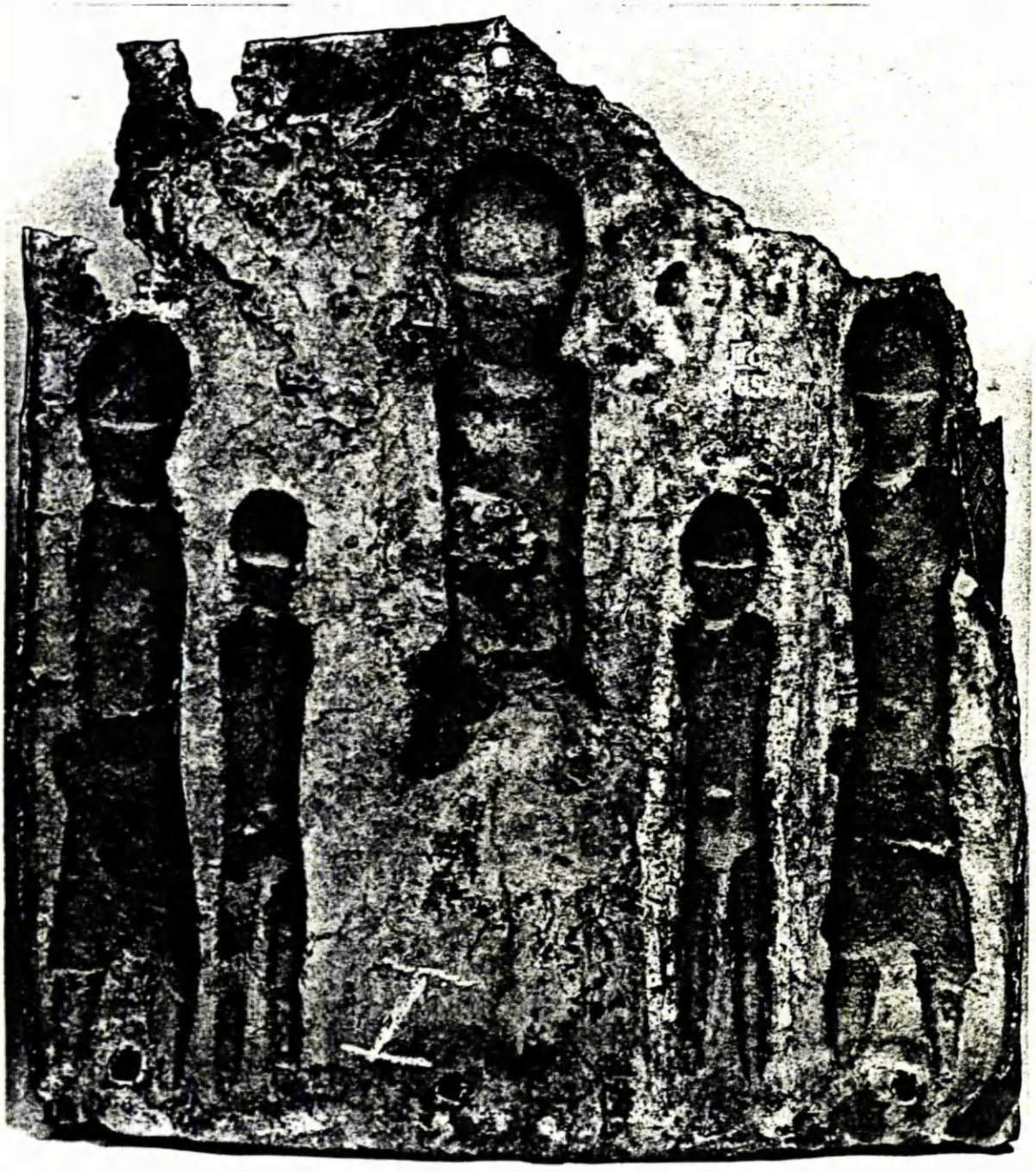
Abb. 382. Platte mit Kampfszenen. Eigentum von Geheimrat Prof. Dr. Hans Meyer, Leipzig.

Abb. 383. Seitenansicht der Fig. 382 abgebildeten Platte.

WS:5.from von Luschan 1919,Abb.382, 383.

WS:6.from von Luschan 1919, Taf.129.

ECF:1.III C 8056,48x39 cm.



ECF:1a. Reverse side III C 8056

CFS:1.III C 8205,44x36.5 cm.

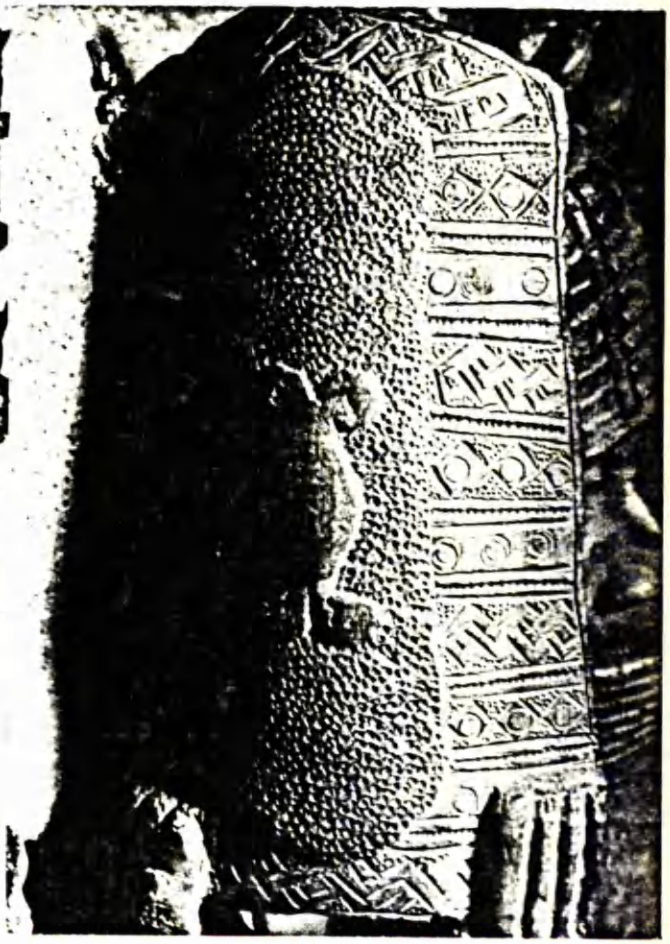
ECF:2.BM:98.1-15.45, . .
45x33.5 cm.

ECF:3.BM:98.1-15.44,42.5x
36.5 cm.

CFS:2.BM:98.1-15.42,48.5
x36 cm.

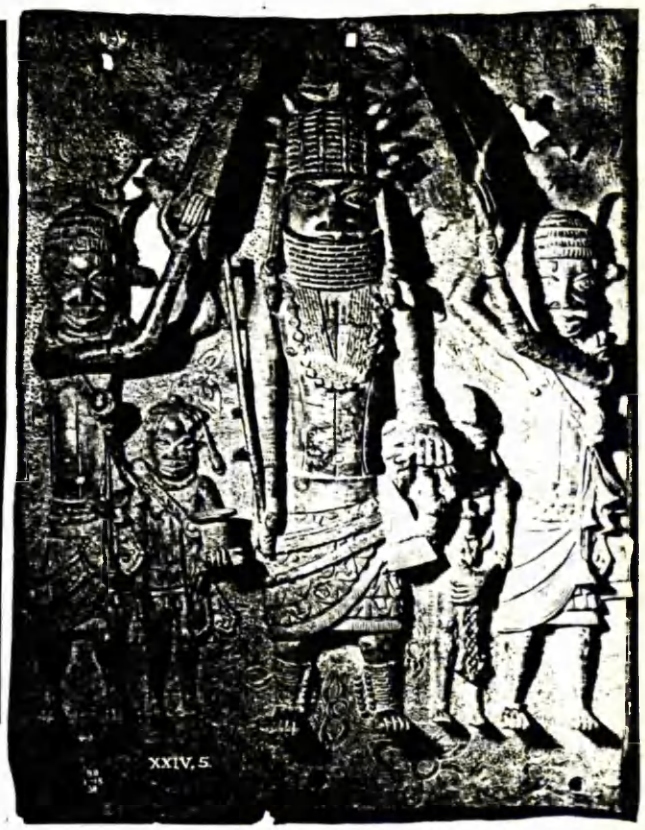
CFS:2a.BM:98.1-15.41,41.5x
33 cm.

CFS:3.BM:98.1-15.39,46.5x
39.5 cm.



CFS:3a.Detail of CFS:3.

CFS:4,Staatlichen Museum, Dresden,from Wolf 1972,Tafel 7.

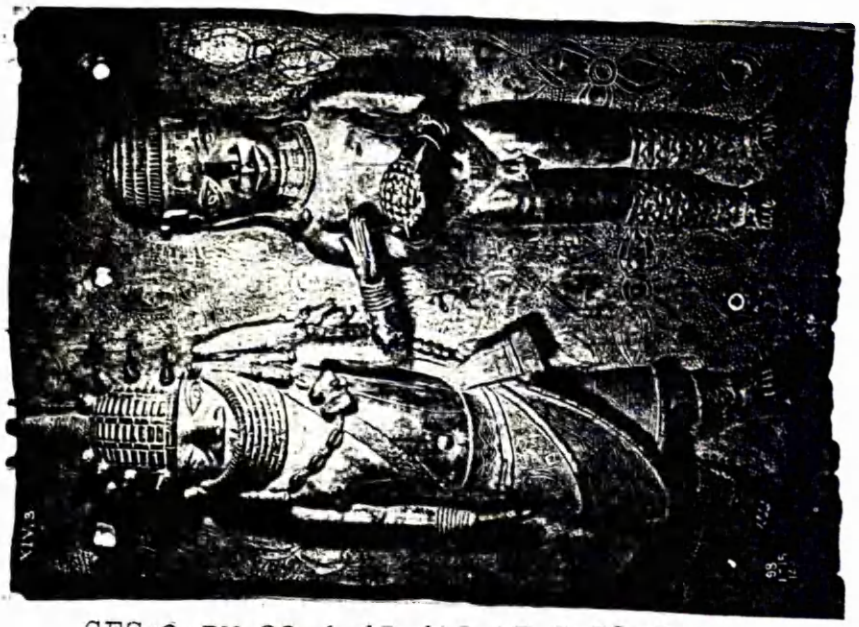


CFS:5.BM:98.1-15.38,50x37 cm.

CFS:6.BM:98.1-15.70,51.5x 37 cm.

CFS:7.BM:98.1-15.147,46x37.5 cm.

CFS:8.from von Luschan 1919,Tafel 22.



CFS:9.BM:98.1-15.148,47.5x32.5 cm.

CFS:10.BM:98.1-15.120,46x37 cm.

CNH:1.BM:98.1-15.117,
47x32.5 cm.

CNH:2.BM:98.1-15.68,
43.5x 33.5 cm.

CNH:2a.Detail

CNH:2b. Detail

CNH:4.BM:99.6-10.2,34x29 cm.

CNH:5.BM.1900.7-20.2,
29.5x34.5 cm.

CNH:6.BM:NN.96,29.5x
30 cm.

CNH:3.BM:98.1-15.137,47x37.5
cm.

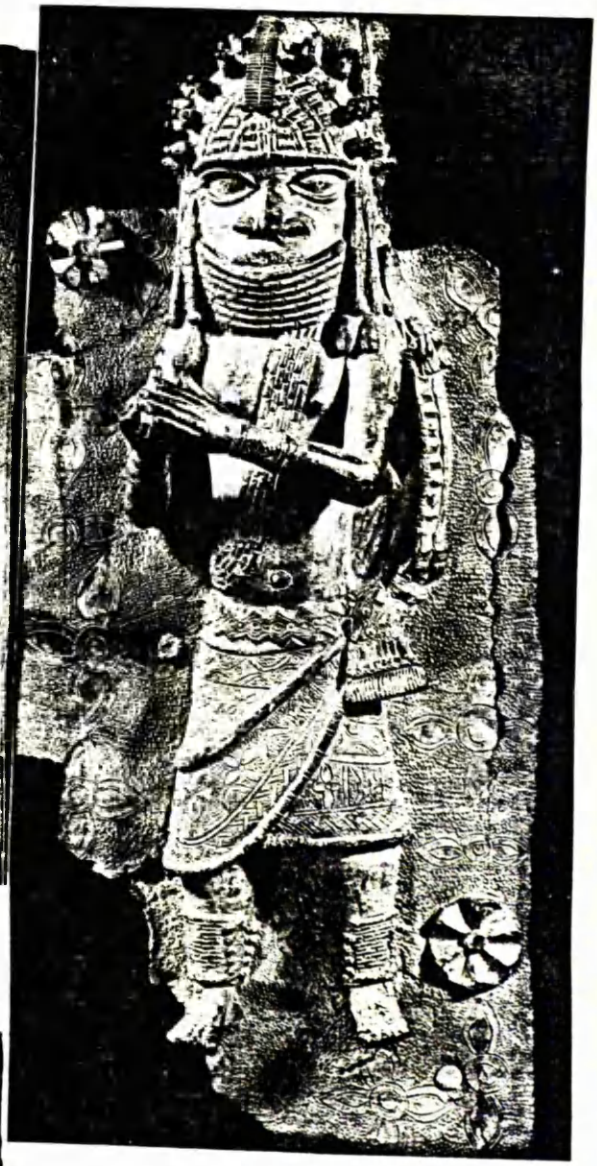
HRPS:1.Field Museum Cicago, neg.99436,FMNH 89773, 28.6x14 cm.(Museum photo)

HRPS:3.III C 8258, 44.5x16 cm.

HRPS:2.Rijksmuseum voor Volkenkunde Leiden,no.1164-1,44x 18.5 cm. (Museum photo)

HRPS:3a. BM:98.1-15.74,
46.5x16.5 cm.

HRPS:5.BM:98.1-15.17, 50.5x33.5 cm.



HRPS:6.Linden-Museum Stuttgart, no.4670,dim.?,(Mus. photo).

HRPS:8.BM:98.1-15.15,41.5x 23 cm.

HRPS:7.Rautenstrauch-Joest-Museums
Köln,no.17973,54x35 cm.
(Museum photo)

HRPS:4.Horniman Museum,LAB.916-9229,45.7x40 cm.

HRPS:11.BM:98.1-15.72, 43.5x19 cm.

HRPS:13.Horniman Museum. LAB.921-9228,38.7 x35.9 cm.

HRPS:10.Horniman Museum,LAB. 922.4392,51.1x30.5 cm.

HRPS:9. University Museum, Phila., neg.62681, no.29-94-3, 47.5x39.5 cm. (Museum photo).

HRPS:12.BM:98.1-15.121,43.5x 40 cm.

HRPS:14.BM:98.1-15.33, 45.5x16.5 cm.

HRPS:15.BM:98.1-15.136,50x 38.5 cm.

HRPS:17.BM:98.1-15.123, 54x37.5 cm.

HRPS:16.BM:98.1-15,141,53x36.5 cm.

WLH:1.

Abb. 265. Aus zwei getrennt gegossenen Stücken zusammengesetzte Platte. Das obere Stück ist in Berlin, III. C. 10879, vgl. Taf. 16 A, das untere in Hamburg, C. 2434. Gesamthöhe etwa 80 cm, Breite 36,8, also etwa 1/6 (1:6) d. w. Gr.

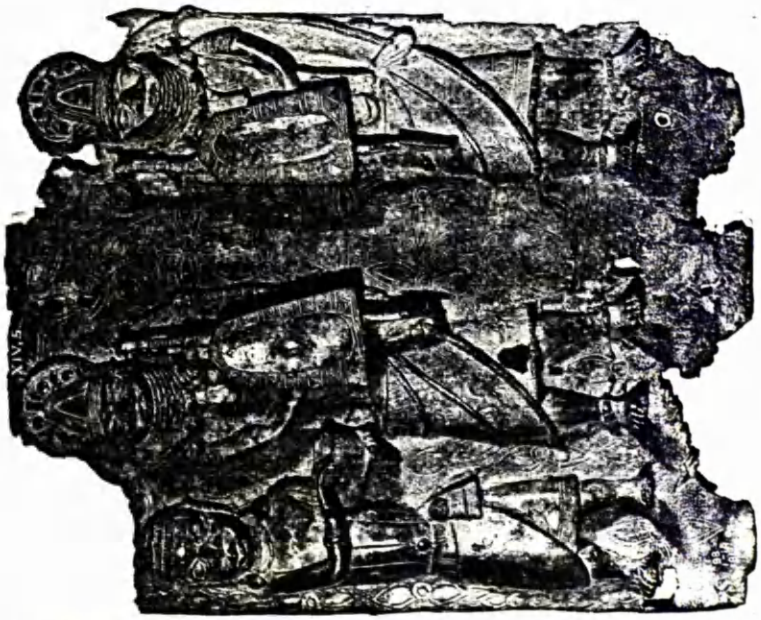
WLH:1.from von Luschan 1919,Abb.265.

WLH:1a. III C 10879,38x37 cm.

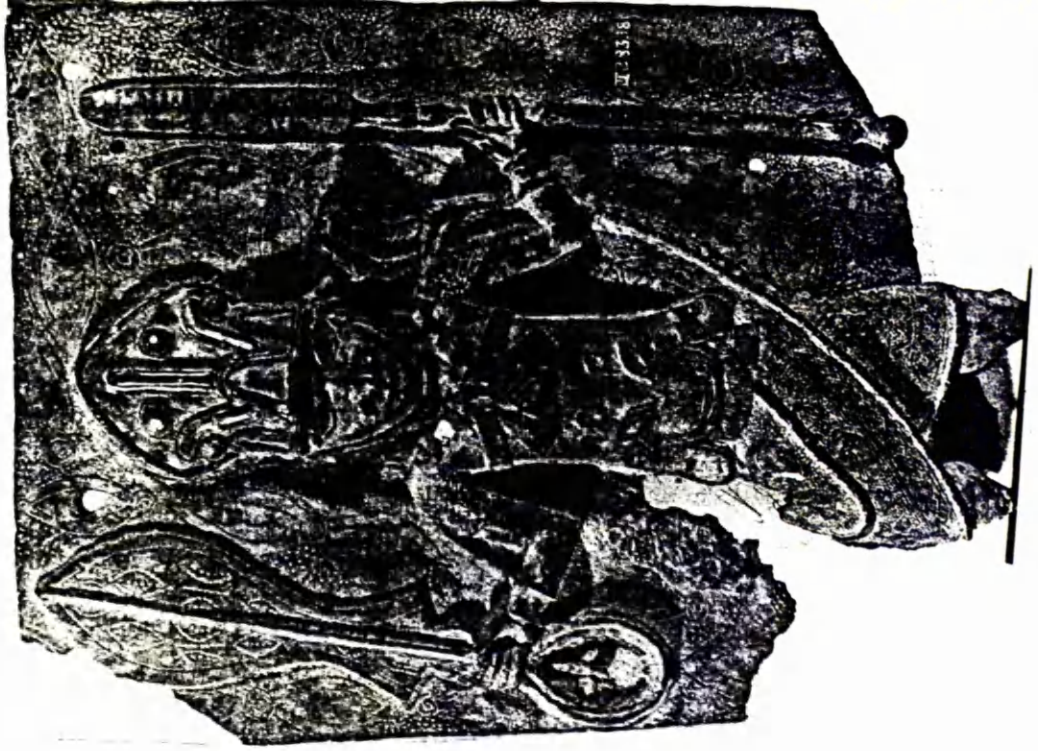
WLH:1b.BM:98.1-15.35,39.5x36

WLH:1a. Reverse, III C 10879

WLH:2.Völkerkunde-Museum Portheim-Stiftung, PSt.20401,dim.?,(Museum photo).



WLH:3.BM:98.1-15.91,47.5x36.5 cm.



WLH:4.III C 8398,41x29 cm.

WLH:7.BM:98.1-15.21,43.5x39.5 cm.

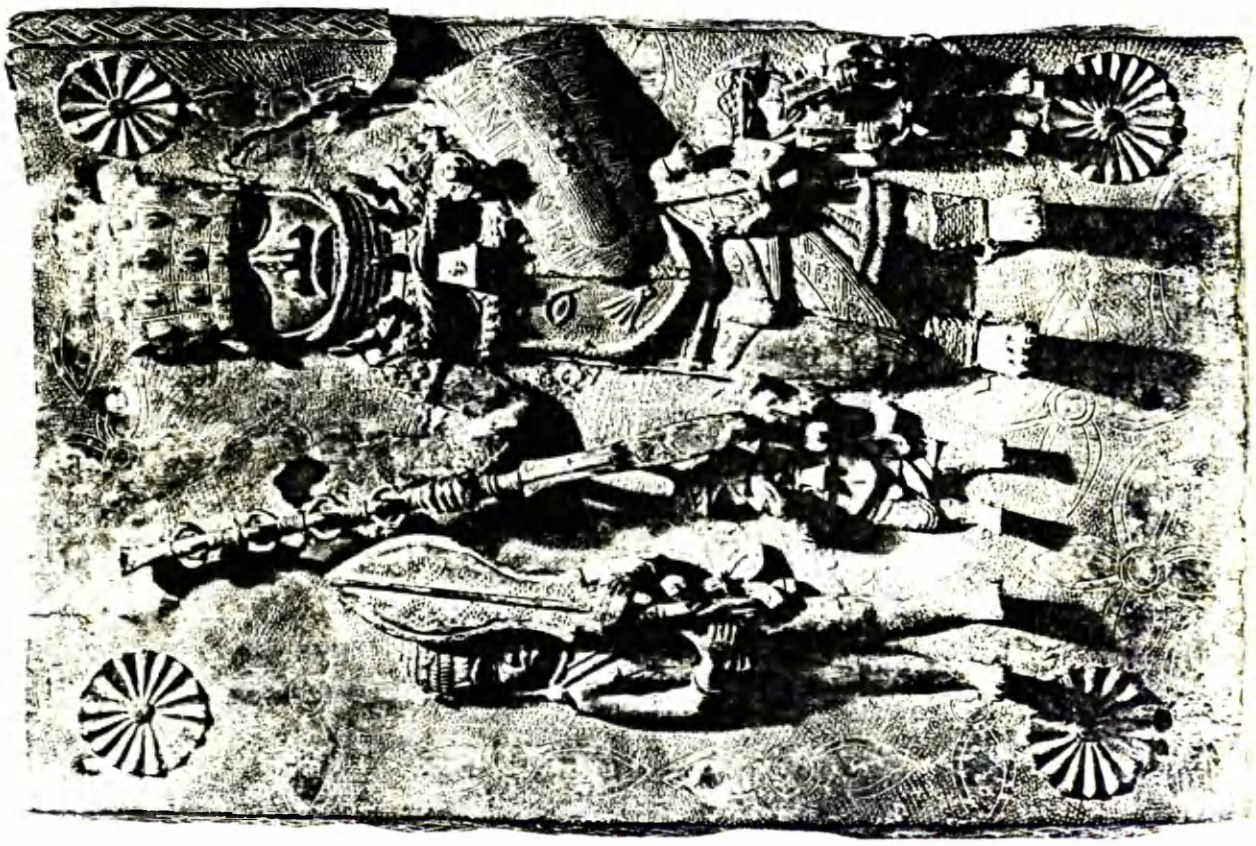
WLH:5.BM:98.1-15.89,
49x36 cm.

WLH:8.III C 10874,52x24 cm.

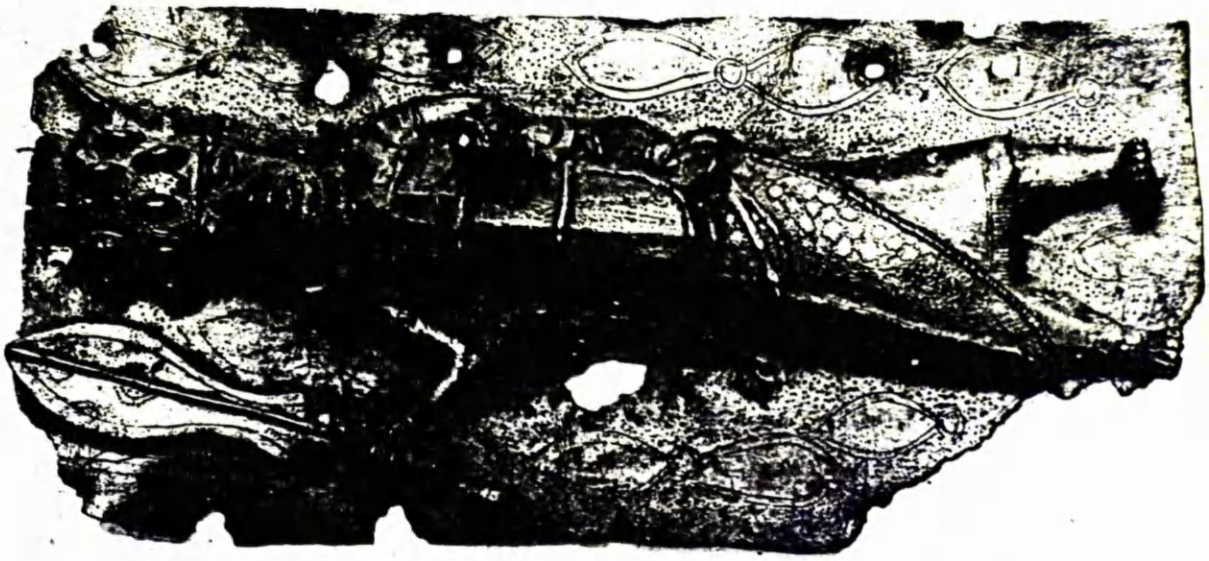
WLH:6.Mus.für Völk.Hamburg, C 2328,46x28.5 cm.,4.26 kg.

WLH:9.BM:98.1-15.40,47.5x38 cm.

WCH:2.III C 8373,43x37 cm.



WCH:4.Museum für Völkerkunde Frankfurt,
NS 8133,48.5x36 cm.(Mus.photo)



WCH:1.Rijksmuseum voor Volkenkunde Leiden,
45x20.5 cm.,4.1 kg.,(Museum photo).

WCH:3.BM:98.1-15.90,49.5
x 32.5 cm.

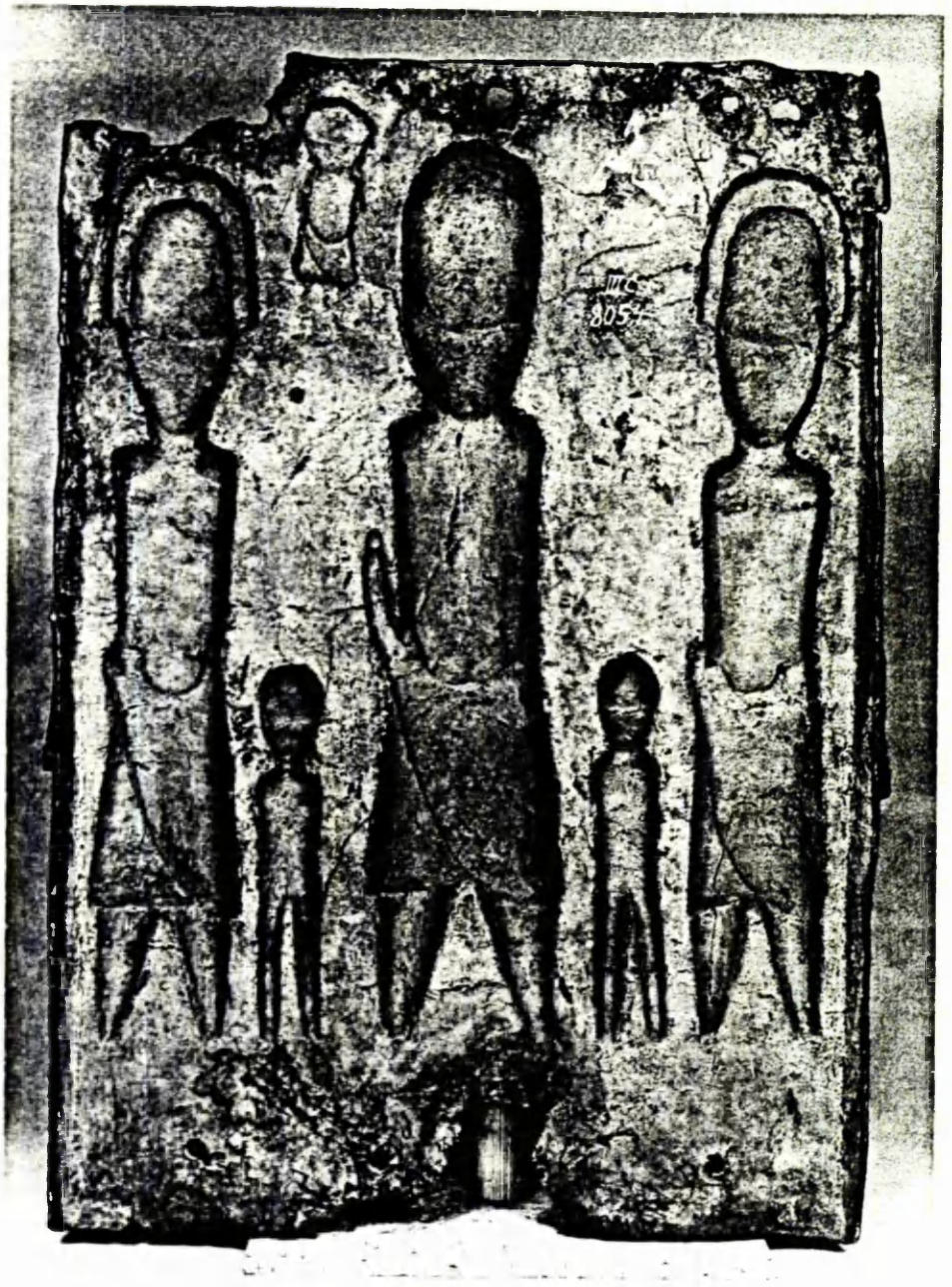
WDH:2. III C 8376,41x30 cm.

WDH:1.III C 8375,44x36 cm.

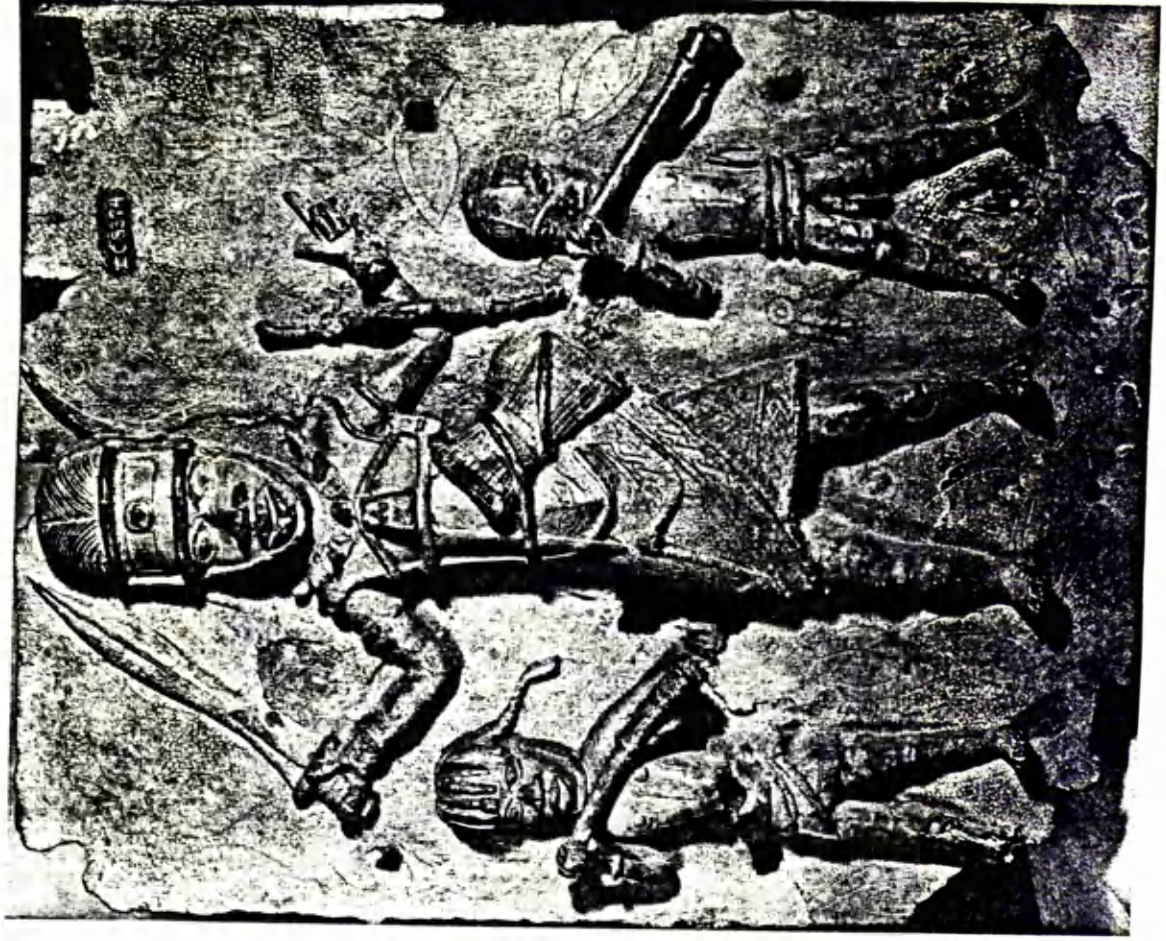
WDH:3.BM:98.1-15.18,54.5x37 cm.

WDH:4.BM:1951.Af.32.1,
48.5x29.5

WHC:1. III C 8054, 57.5x 40 cm.



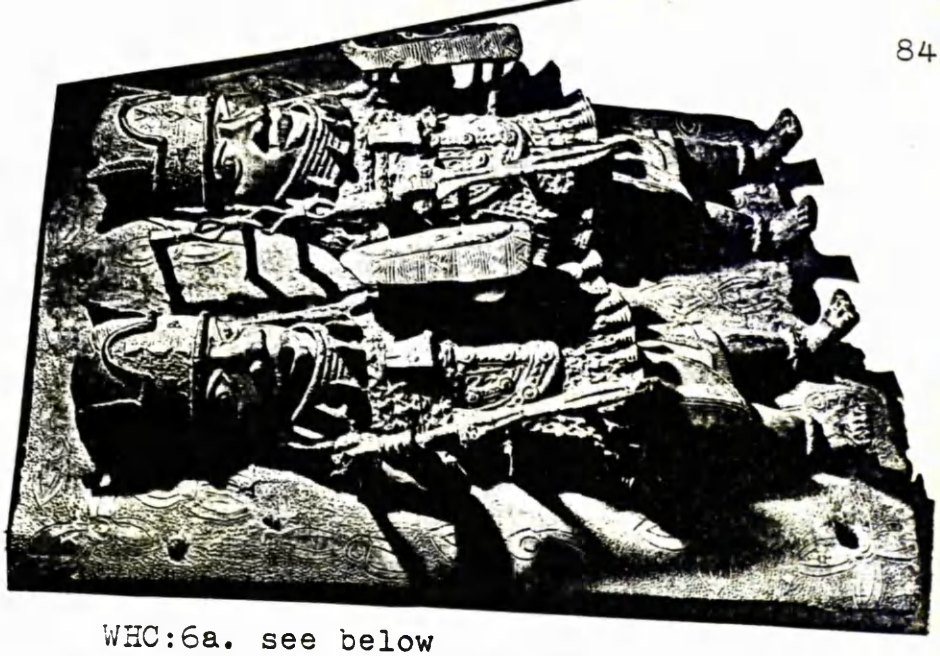
WHC:1a. III C 8054,reverse



WHC:4.III C 8374,47x38.5 cm.

WHC:2.BM:98.1-15.81,54.5x
35.5 cm.

WHC:3.BM:1903.10-22.5,
39x36 cm.

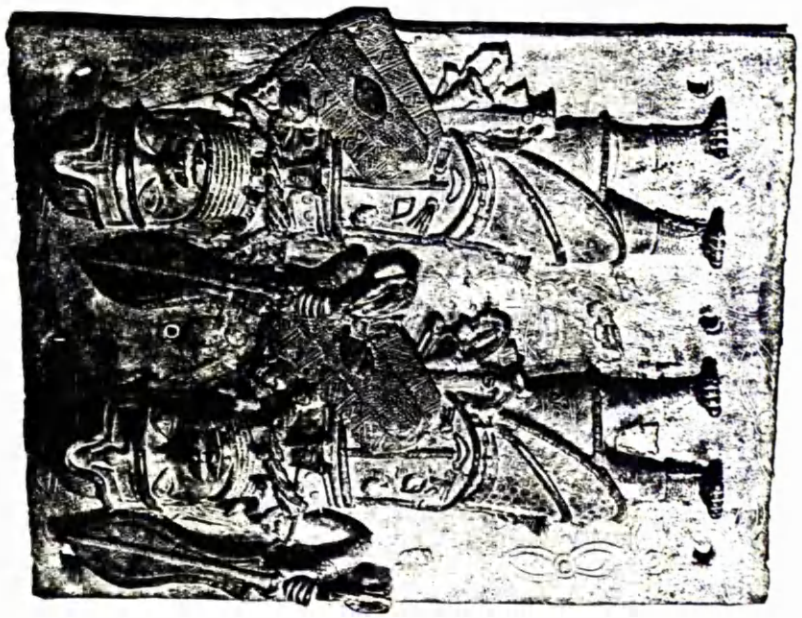


WHC:6a. see below

WHC:6. BM:98.1-15.83,48x32.5 cm.

WHC:5.98.1-15.81,54.5x35.5

WHC:8.University Museum Phila.,neg.62680,
no.AF 2067,42x33 cm.,(Museum photo).



WEC:7.BM:98.1-15.98,48x33.5 cm.

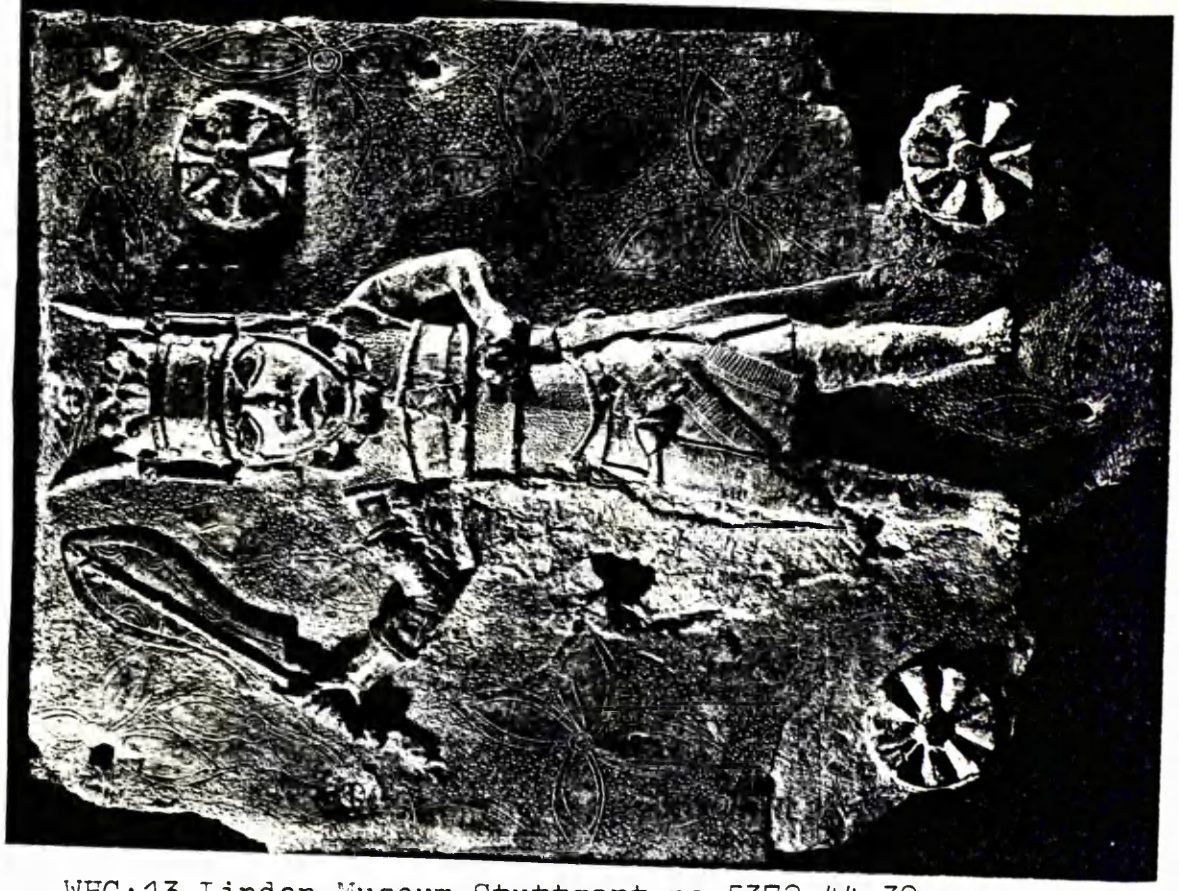
WHC:9.BM:98.1-15.167,
41.5x17.5 cm.

WHC:10.BM:1903.10-22.8,
47.5x18 cm.

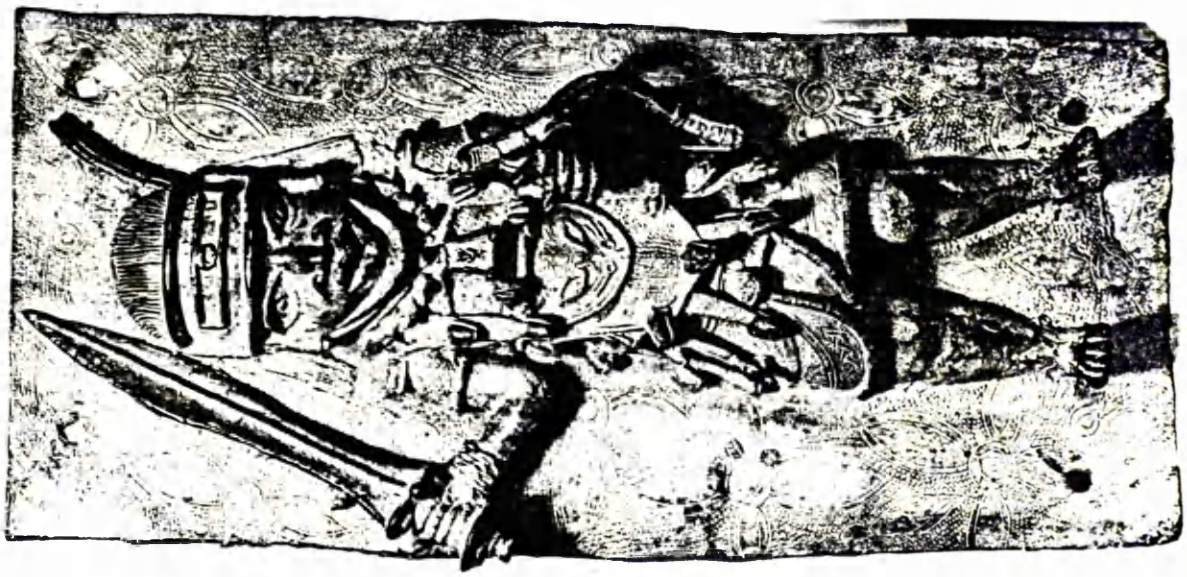
WHC:11.BM:98.1-15.20,
43.5x31.5 cm.

WHC:12.BM:98.1-15.84,
44.5x19.5 cm.

WHC:14.National Museum Denmark,
no.G.1530,48x20.5 cm.,
(Museum photo)

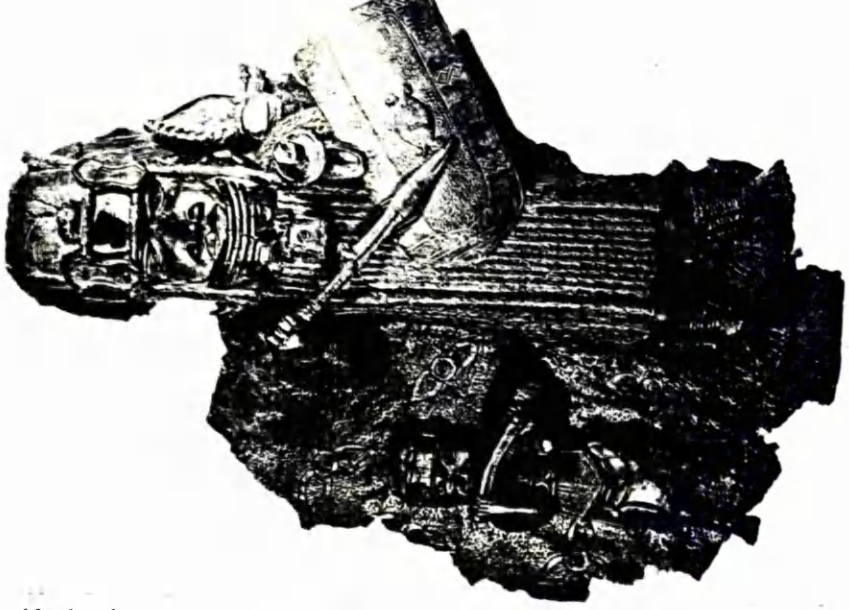


WHC:13.Linden-Museum Stuttgart,no.5372,44x39 cm.
(Museum photo)

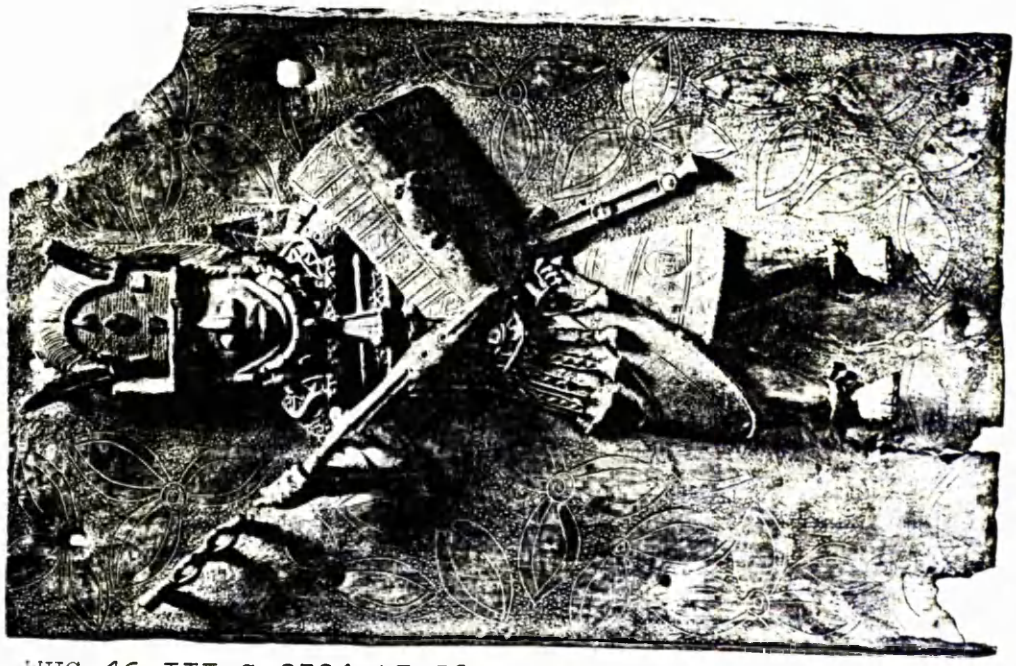


WHC:15.Rijksmuseum voor Volkenkunde Leiden,no.1243-18,
45x20 cm.,(Museum photo)

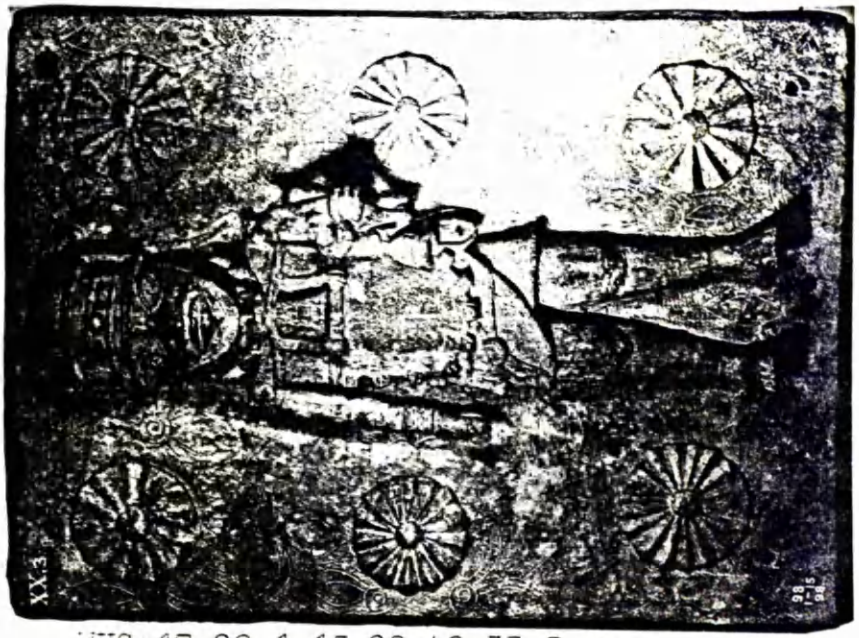
WHC:18.BM:98.1-15.162,38x17.5 cm.



WHC:10.Horniman Museum,LAB.919-9226,
45.7x30.5 cm.



WHC:16.III C 8391,47x32 cm.



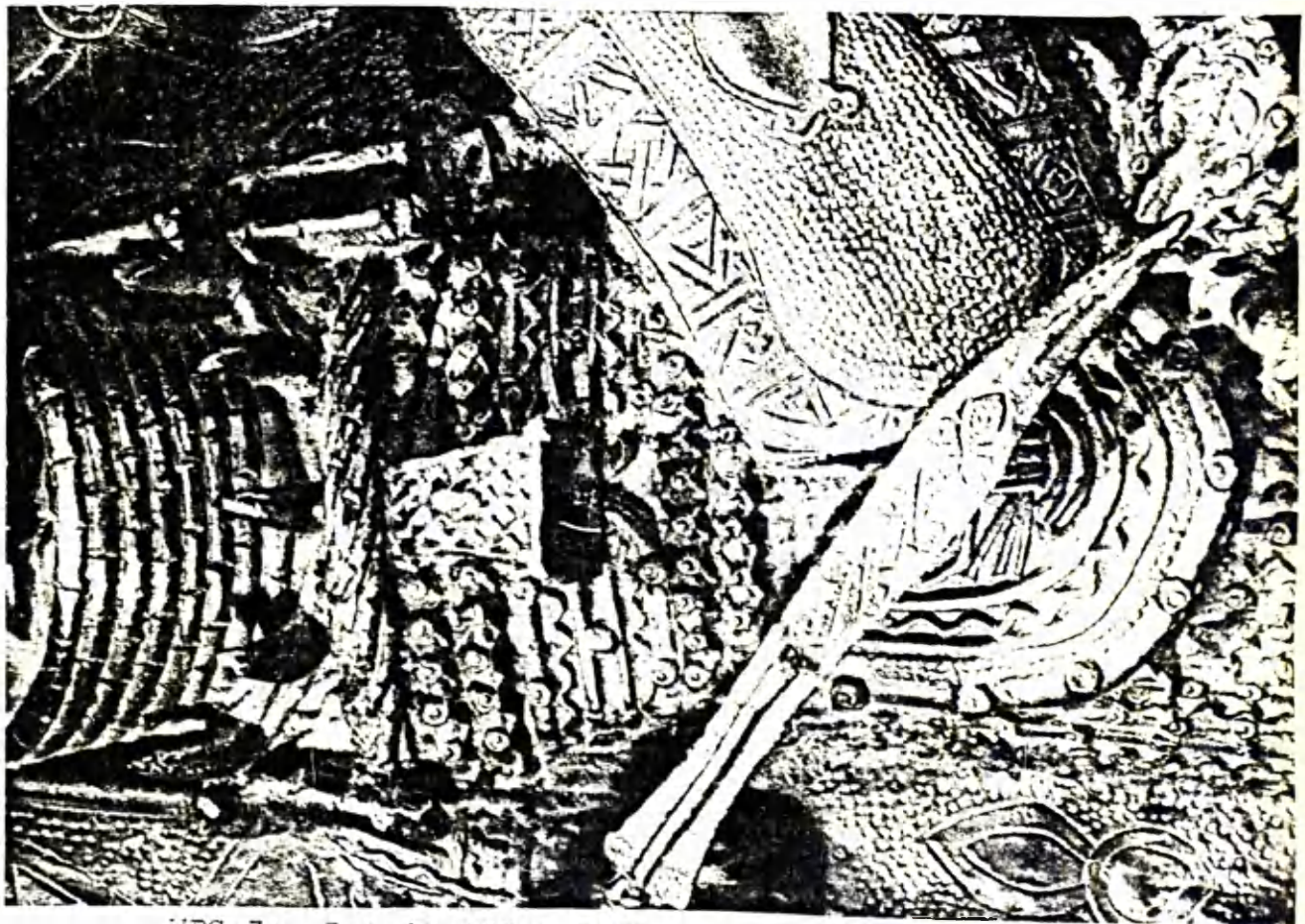
WHC:17.98.1-15.98,48x33.5 cm.

WBC:1.Musée De L'Homme,M.H.31.49.19,
C-64-2594-493,52.4x36.5 cm.,
(Museum photo)

WBC:3.III C 7657,48x34 cm.

WBC:3b. Reverse III C 7657

WBC:3a. Detail III C 7657.



WBC:3c. Detail III C 7657

WBC:2.III C 8208,50x37 cm.

WBC:8.BM:98.1-15.64,
53x35.5 cm.

WBC:4.BM:98.1-15.86,
54x40 cm.

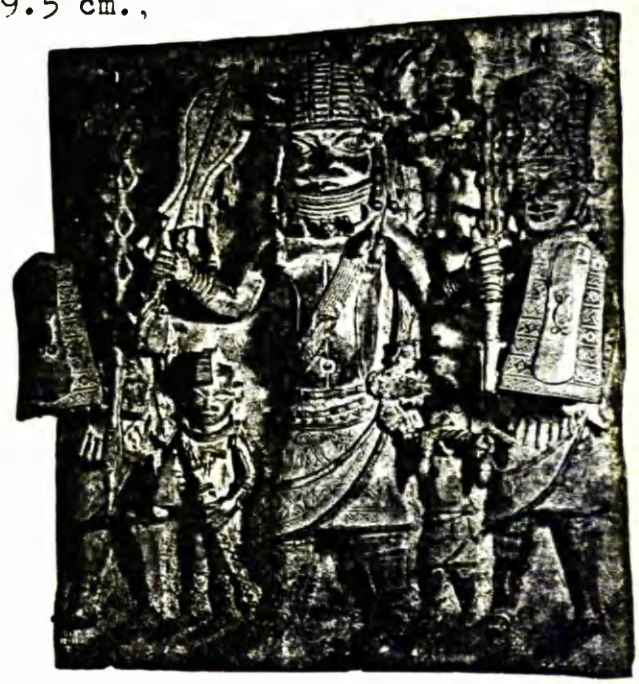
WBC:6.University Museum Phila.,neg.62683,
AF 2066,47.6x38.7 cm.(Museum photo)

WBC:5.BM:98.1-15.27,41.5x
33 cm.

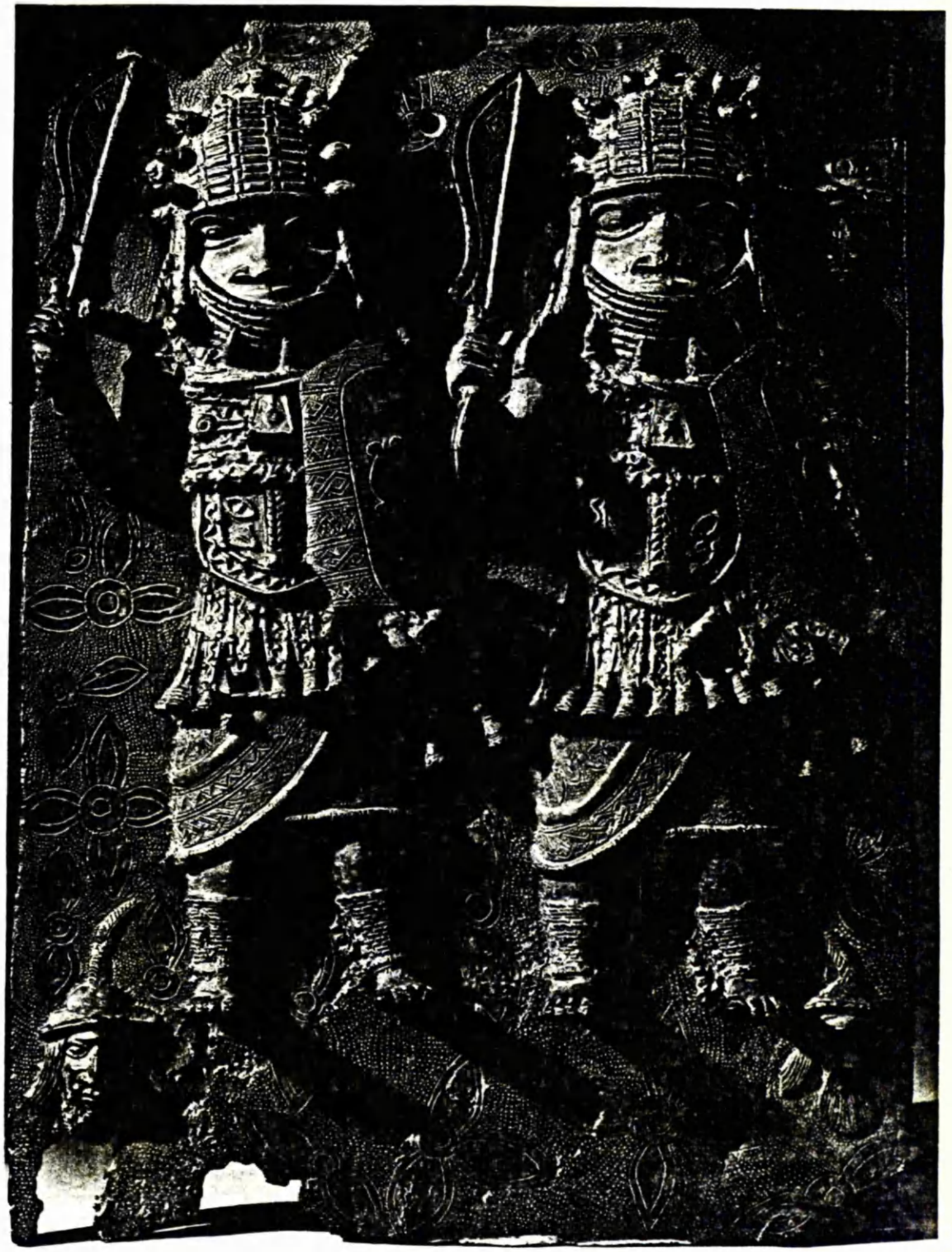
WBC:9.BM:98.1-15.22,38x
31.5 cm.

WBC:12.Collection Barbier-Müller,
no.1011/101,40x35 cm.,
(Collection photo)

WBC:7. William Rockhill Nelson Gallery of Art, no. 58-3, 37x39.5 cm., (Museum photo).



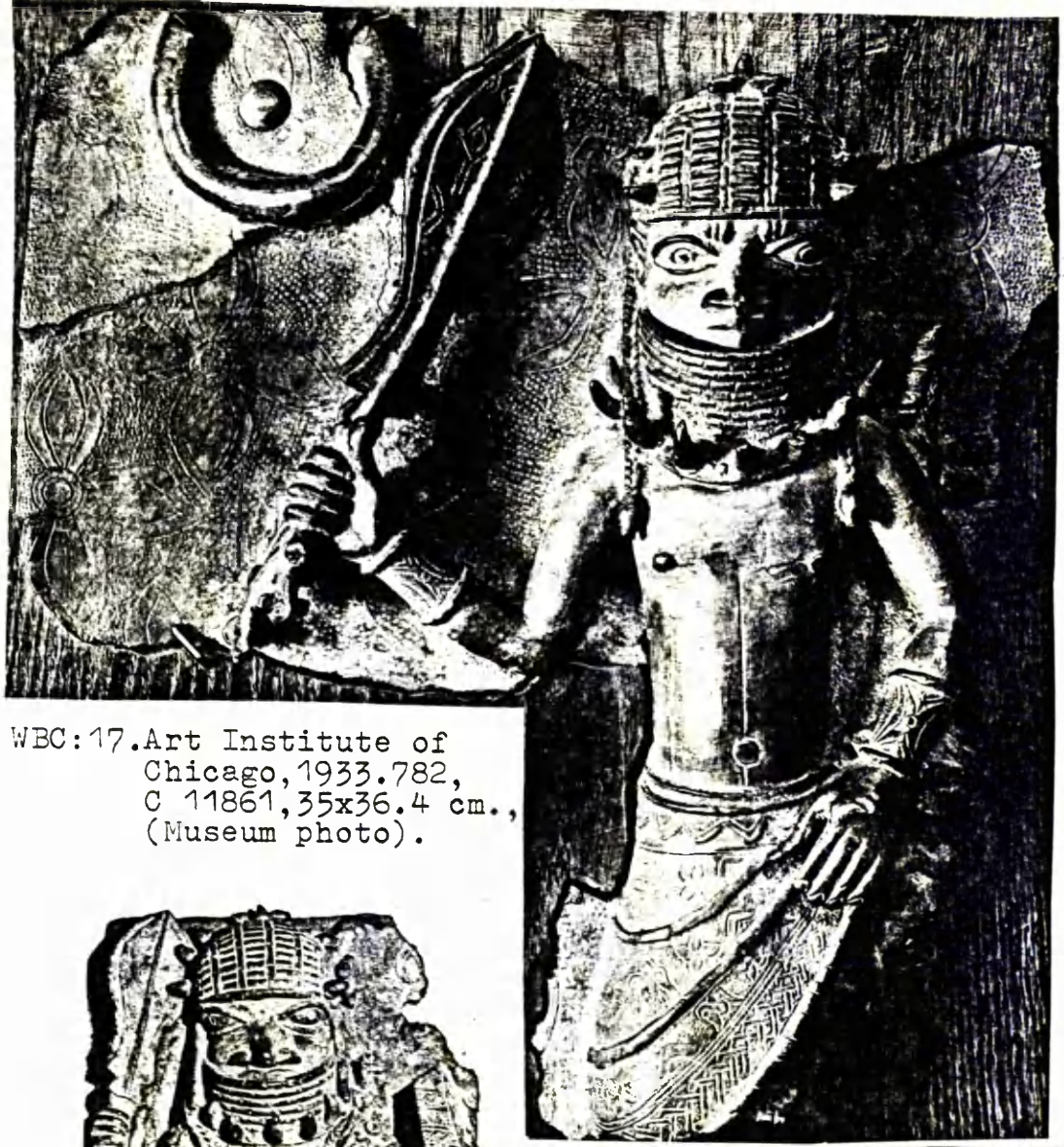
WBC:10. BM:1913.12-11.2, 42x37 cm.



WBC:13.Museum für Völkerkunde München,
neg.14598,cat.99.6,48x33.5,13 kg.,
(Museum photo)

WBC:14.Linden-Museum Stuttgart,no.4668,
fragment,von Luschan 1919,232,241,
(Museum photo).

WBC:11.BM:98.1-15.92,
45.5x33 cm.



WBC:17.Art Institute of Chicago,1933.782, C 11861,35x36.4 cm., (Museum photo).

WBC:15.BM.98.1-15.102, 44.5x19 cm.

WBC:16.BM:98.1-15.103, 52.5x35 cm.

WCS:1.Linden-Museum Stuttgart,no. 5408,29x35 cm.,(Museum photo).

WCS:3.BM:98.1-15.107,47.5x33.5 cm.

WCS:2.BM:98.1-15.163, 37x19 cm.

WCS:5.Rijksmuseum voor Volkenkunde Leiden, no.1243-16,45.5x30.5 cm.,4.55 kg., (Museum photo).

WCS:7.BM:98.1-15.63,51.5x 38.5 cm.

WCS:9.BM:98.1-15.61,45.5x30 cm.

WCS:8.III C 8261,49x19 cm.

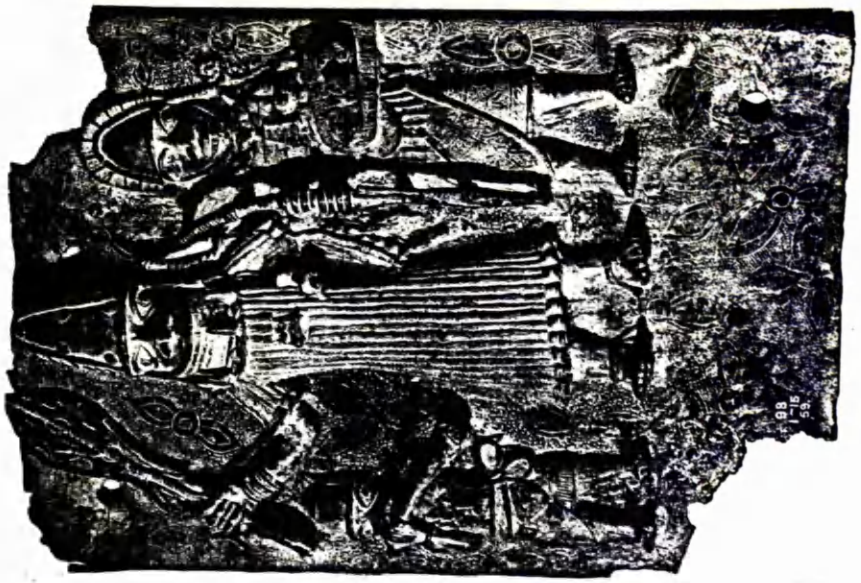
WCS:6.Field Museum Chicago,neg. 99442,FMNH 91242,39.7x 19.1 cm. (Museum photo).

WCS:13.Seattle Art Museum,no.58.134,
43.9x39.4x7.2 cm.(Museum photo)

WCS:10.BM:98.1-15.58,
45x31 cm.

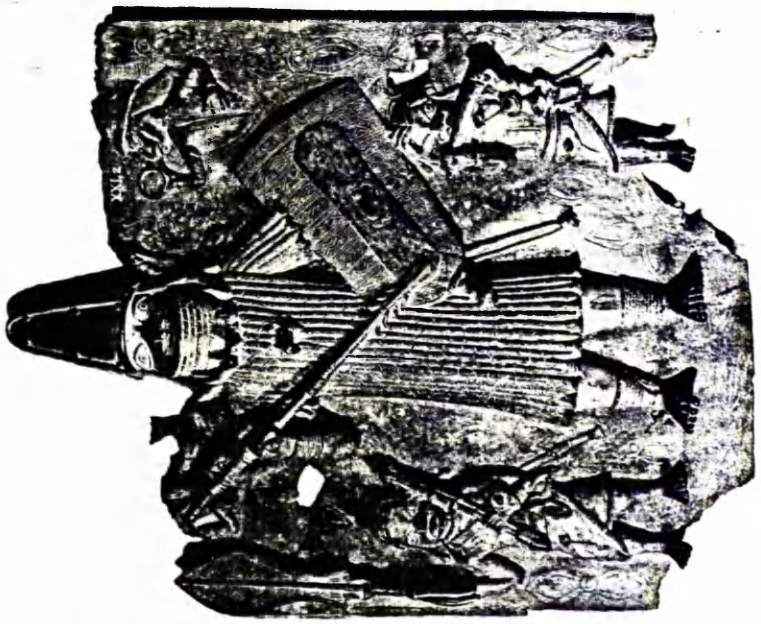
WCS:4.III C 8392,47x31 cm.

WCS:15.BM:98.1-15.104,
44.5x32 cm.



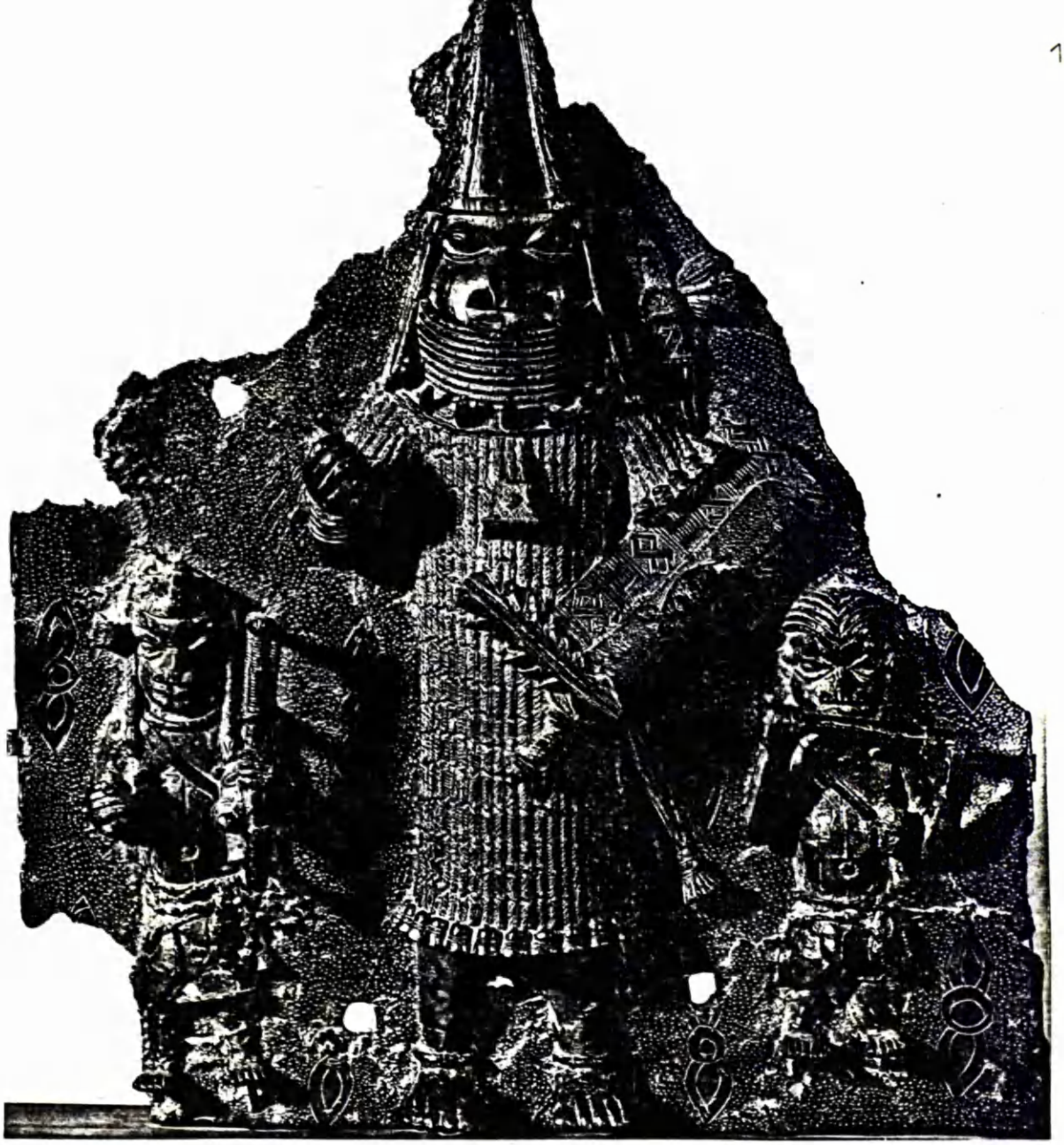
WCS:14.BM:98.1-15.59,47x31 cm.

WCS:16.III C 8055,52x38 cm.

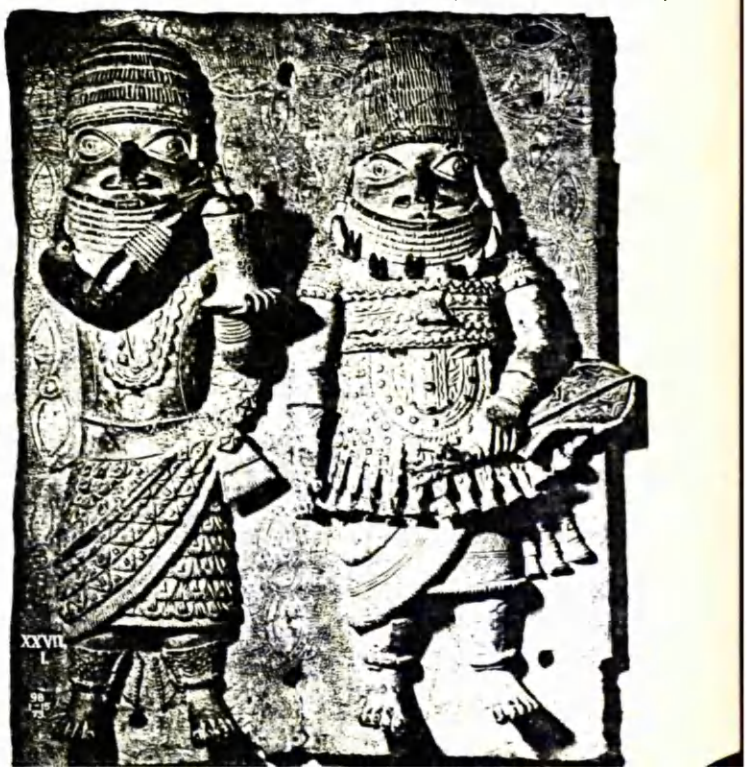


WCS:12.BM:98.1-15.60,47x32 cm.

WCS:16.Full frontal III C 8055



WCS:11.Carnegie Mus.,DA-794,58.20.1,43.5x38.1 cm.,(Mus.photo)



WCS:17.BM:98.1-15.73,44.5 x32.5 cm.

WCS:18.Horniman Museum
LAB.918-4394,
47.6x34.3 cm.

WCS:19.Horniman Museum,
LAB.923-9224,
52.7x40 cm.

WCS:20.Mus.für Völk.
Hamburg,C2493,
45x19 cm.,4.72 kg.

WCO:4.III C 8390,43x40 cm.

WCO:1.BM:98.1-15.36,42.5
x36 cm.

WCO:3.BM:98.1-15.56,
38.5x18 cm.

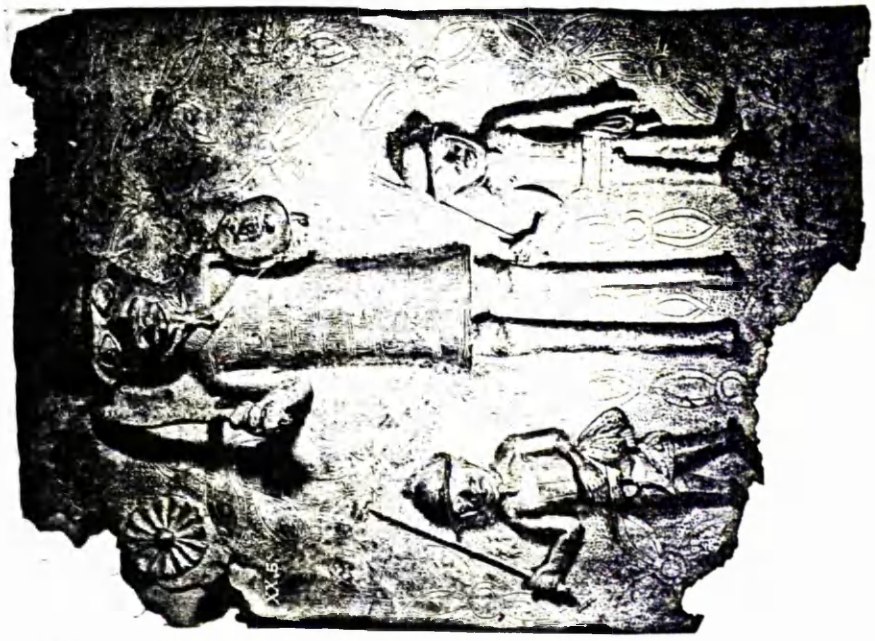
WCO:2.BM:98.1-15.53,
49.5x35.5 cm.

WCO:7.BM:98.1-15.52,
40x39.5 cm.

WCO:5.BM:98.1-15.54,37x35.5 cm.

WCO:8.BM:98.1-15.51,46.5x37 cm.

WCO:6.BM:98.1-15.55,36.5x36 cm.



WPH:1.BM:98.1-15.79,48.5x38 cm.

WPH:4.Linden-Museum Stuttgart,
no.4667,39.8x18.5 cm. (Mus.photo).

WPH:2.BM:98.1-15.109,55x38 cm.

WPH:3.Mus.für Völkerkunde
Hamburg,C 2384,38x
20 cm.,2.78 kg.

WPH:5.Horniman Museum,
LAB.914-9230,
29.2x14.3 cm.

WPH:7.BM:98.1-15.138,
40.5x16.5 cm.

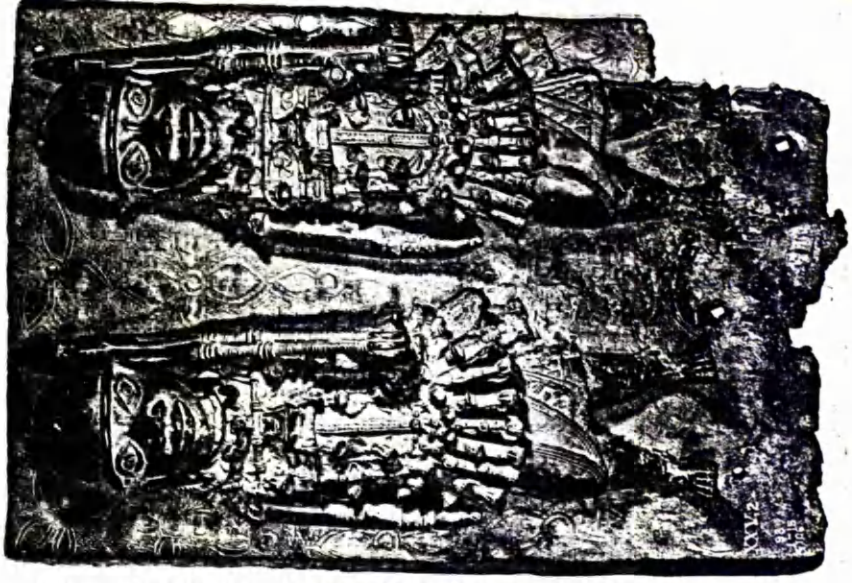
WPH:8.BM:97.6-19.1,
40x18 cm.

WPH:6.Formerly Pitt Rivers Dorset,Sotheby's no.F-11788,49.7x38.5 cm.(Sotheby's photo).

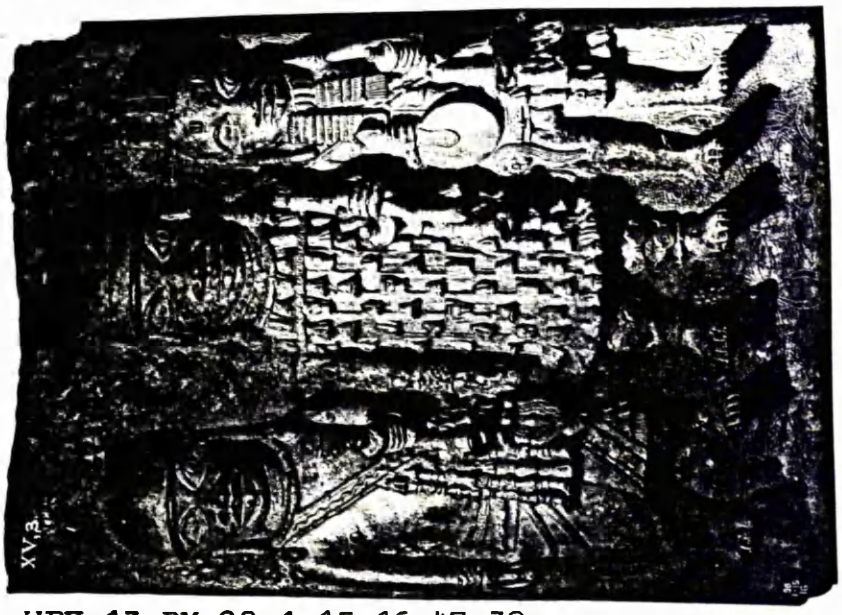
WPH:10.BM:98.1-15.168,38.5x18 cm.

WPH:9.Mus.für Völkerkunde Frankfurt,
NS 8132,54x37 cm.

WPH:11.Mus.für Völk.
Hamburg,no.C2329,
42x30 cm.,8.1 kg.



WPH:12.BM:98.1-15.106,50.5x33.5



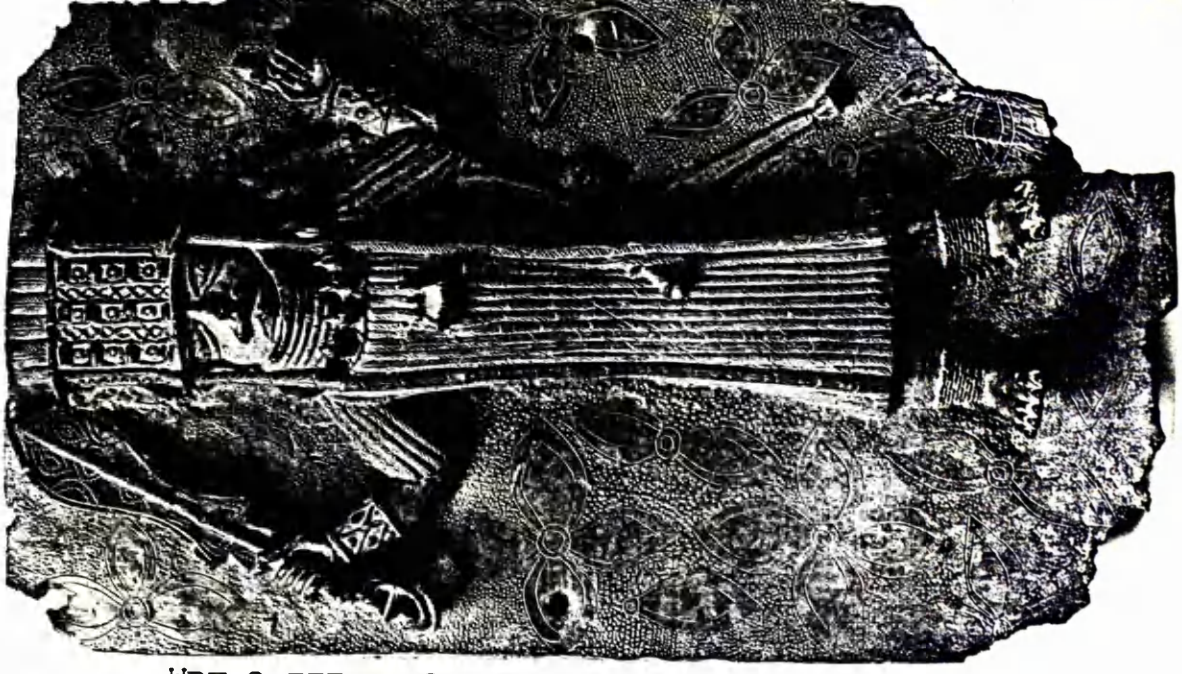
WPH:13.BM:98.1-15.16,47x32 cm.

WPH:14.BM:98.1-15.133,48x32 cm.

WPH:16,16a. Staatlichen Museums Dresden, no.?, 49x34 cm. (from Wolf 1972, Taf.4,5), note reverse printing.

WPH:15. BM:98.1-15. 151,42x32.5 cm.

WPH:17.Buffalo Museum of Sciences,neg.28300,
C15745,47x31 cm.,(Museum photo).



WRH:2.III C 8209,50x30 cm.

WRH:3.BM:98.1-15.50.
43x38.5 cm.

WRH:1.BM:1903.10.22.6,34.5x
35.5 cm.

WSH:3.Brooklyn Museum,Acc.39.113,29x18 cm.
(Museum photo).

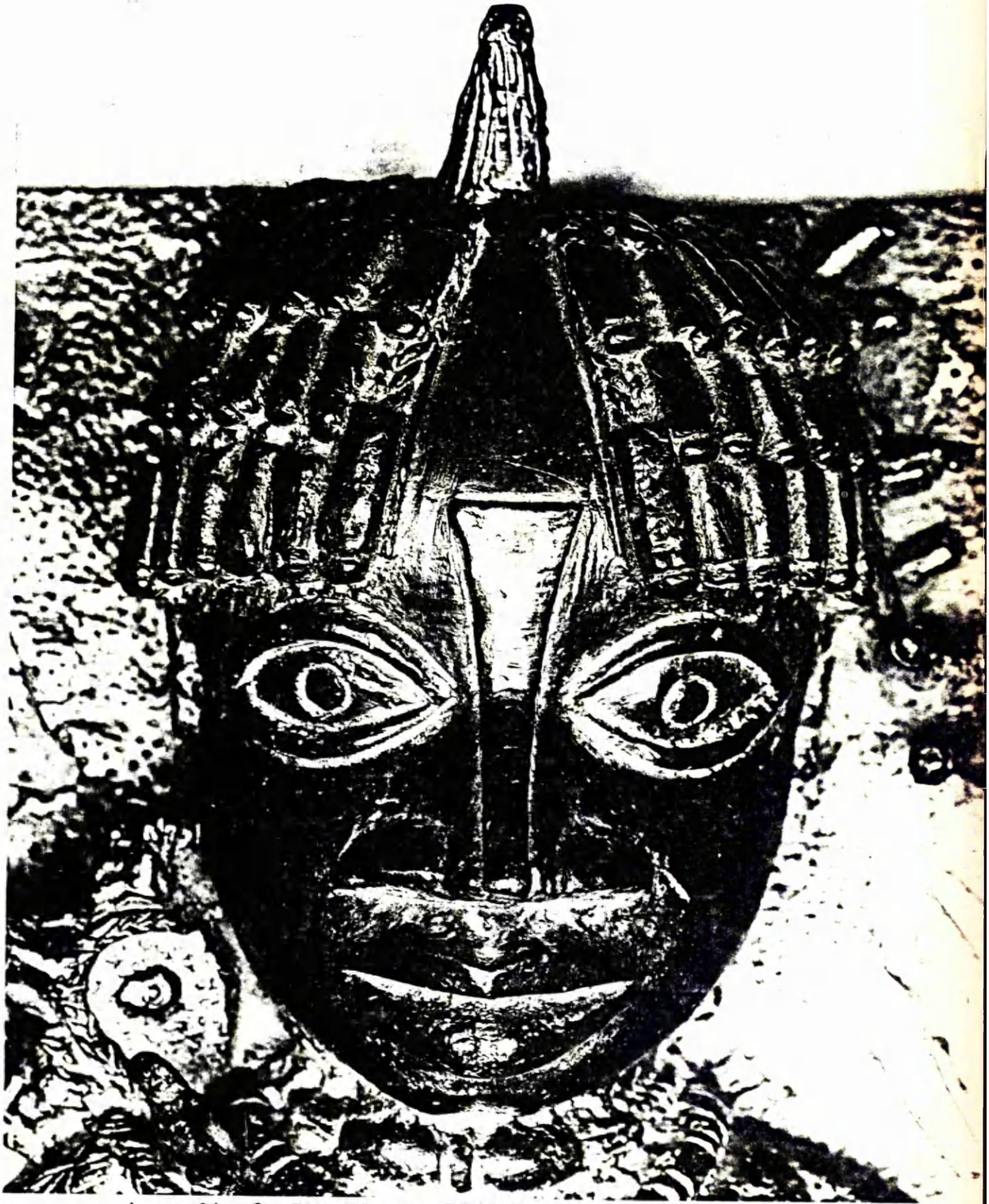
WSH:2.III C 8385,37x18 cm.

WSH:1.Mus.für Völk.
Hamburg,C2302,
45.5x20 cm.,5.17 kg.

WSH:6.BM:98.1-15.95,
48x33.5 cm.

Appendix 1. Royal Ontario Museum, neg.67ETH441,
HA 352,45x34x3 cm., fig.projects
8.2 cm. from the basal plane,
8.51 kg. (Museum photos)

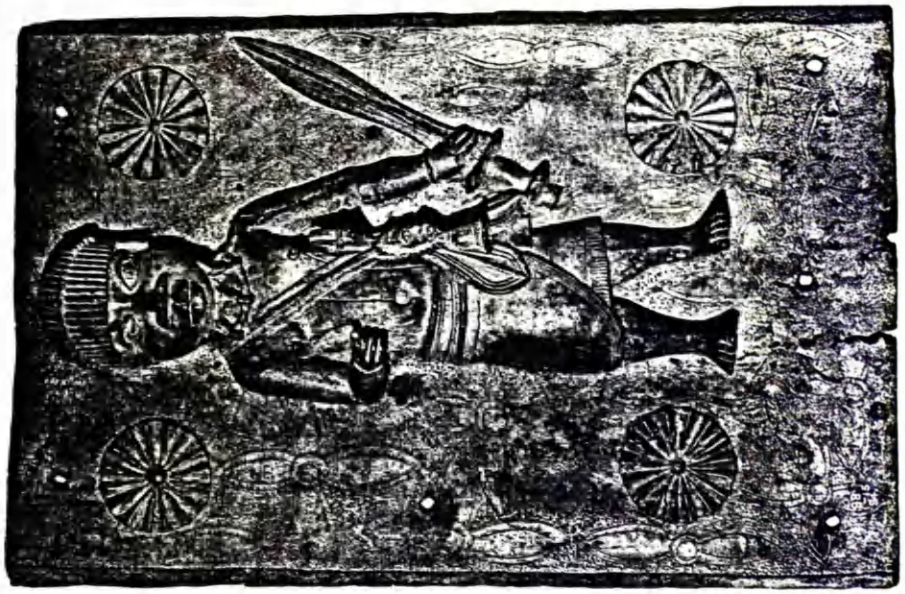
Appendix 5. Reverse side, neg.75ETH36.



Appendix 2. Detail, neg.75ETH35

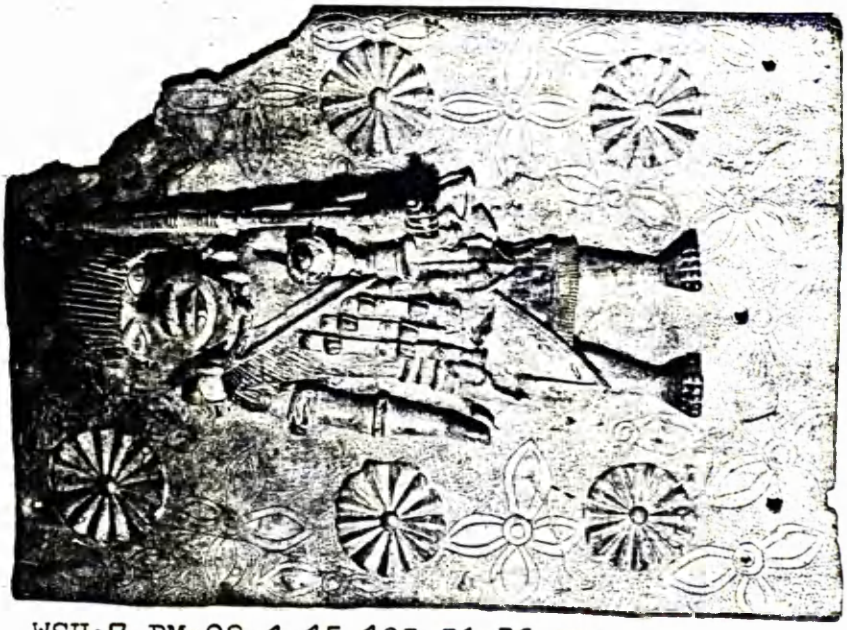
Appendix 3. Detail, neg. 75ETH37.

Appendix 4. Detail, neg. 75ETH38.



WSH:4.BM:98.1-15.94,52.5x32 cm.

WSH:5.BM:98.1-15.93,48x31 cm.



WSH:7.BM:98.1-15.105,51x36 cm.

WSH:8.BM:98.1-15.111,42.5x31 cm.

WSH:9.BM:98.1-15.108,48.5x32.5 cm.

WSH:10.BM:1903.10-22.7,45.5x20.5 cm.

WSH:11.III C 8277,47x30 cm.

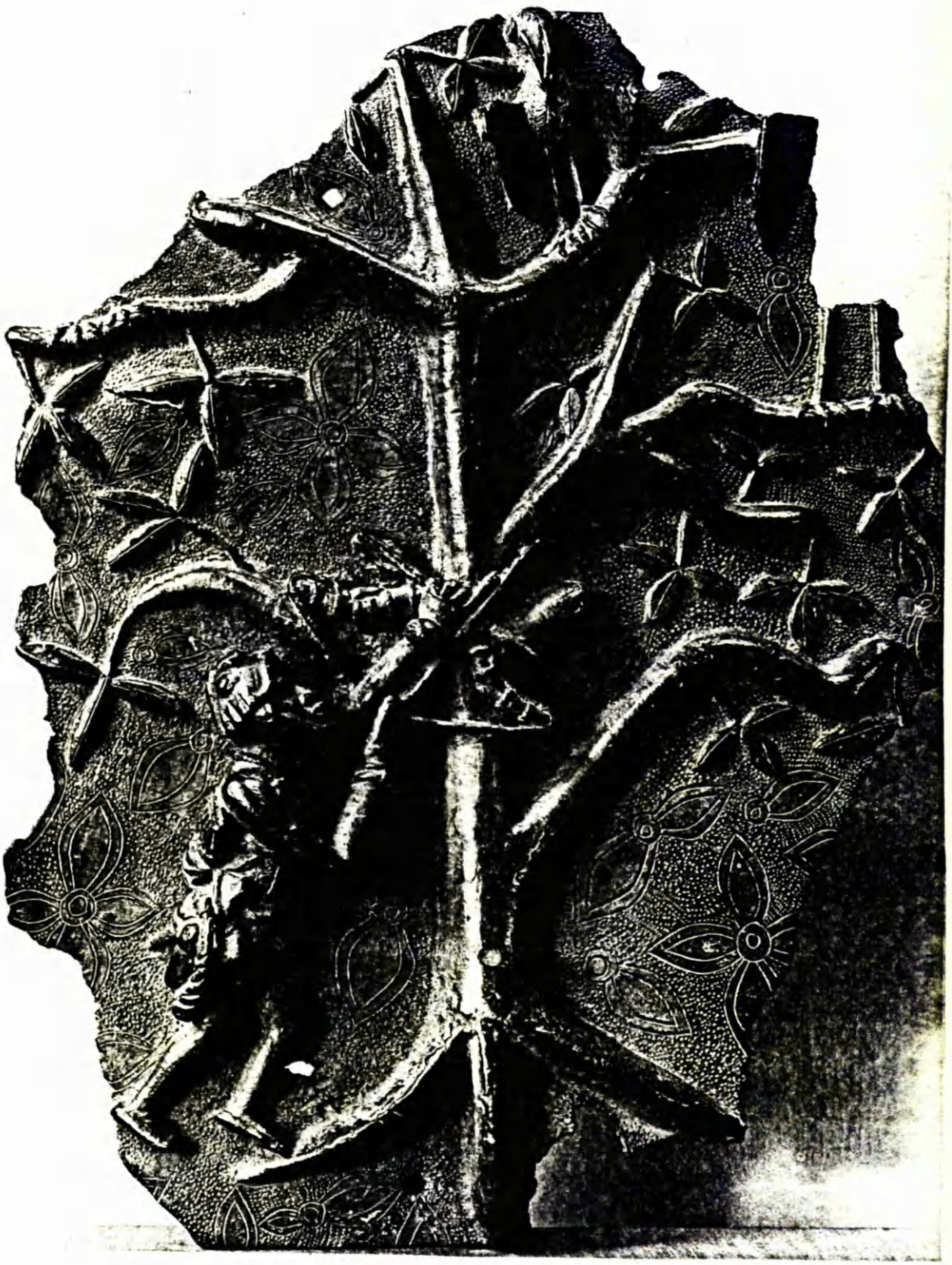
WSH:12.Horniman Museum,LAB 924-4390,48.3x39.1 cm.

WSH:14. University Museum Phila., neg.648, AF 5108, 41x37 cm., greatest depth of figure 8.5 cm., (Museum photo)

WSH:13. University Museum Cambridge, 38.6x29.4 cm.

WSH:15.BM:98.1-15.149,48x31 cm.

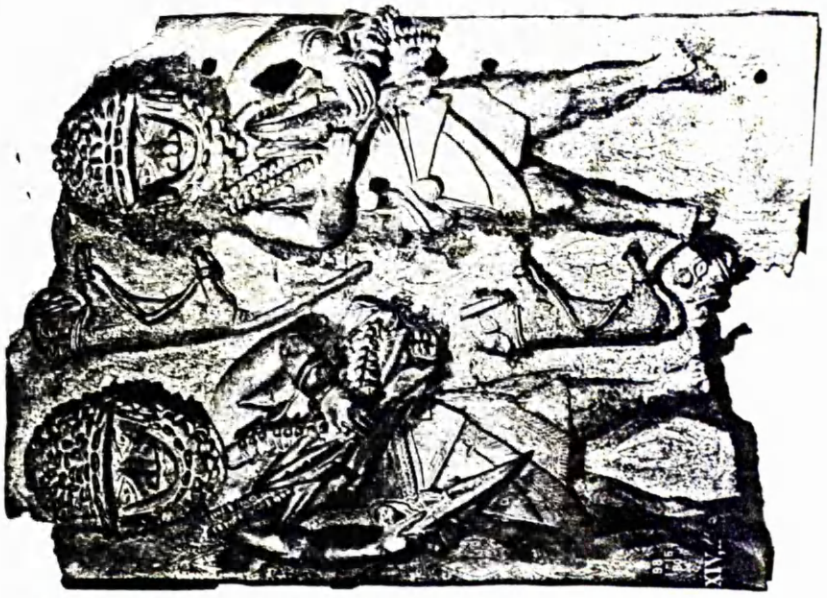
WSH:16.BM:98.1-15.150,48x37.5 cm.



RH:1.III C 8206,45x34 cm.

RH:1a. Reverse III C 8206

RH:2.III C 8378,42x38 cm.



RH:3.BM:98.1-15.80,49.5x33.5 cm.

RH:4.Mus.für Völkerkunde Hamburg,
C 2301,50x37 cm.,24.5 kg.

Abb. 378. Zwei streitende Jäger mit an den Füßen und an der Schnauze gefesselten Panthern. Leipzig, Eigentum von Dr. Hermann Meyer. Etwa $^1/_3$ d. w. Gr.

RH:5.from von Luschan 1919,Abb.378.

Abb. 390. Kinder, die sich auf Strickschlingen schaukeln. Sammlung von Admiral Rawson.

A:1.Original in National Museum Lagos,
Plaster copy in British Museum,
from von Luschan 1919,Abb.390,41x37 cm.

FA:1.BM:98.1-15.78,47.5x33.5 cm.

FA:2.BM:98.1-15.70,51.5x 37 cm.

FA:3.BM:98.1-15.75,51x33 cm.

FA:4.BM:98.1-15.77,48x35.5 cm.

IN:1.BM:1913.12-11.1,51x39 cm.

IN:2.from Pitt Rivers 1900,pl.47,
figs.369-371.

PA:1.Pitt Rivers Oxford,1900.39.1,
40x19 cm.(Museum photo)

PA:3.BM:1908.12-5.1.
39.5x18 cm.

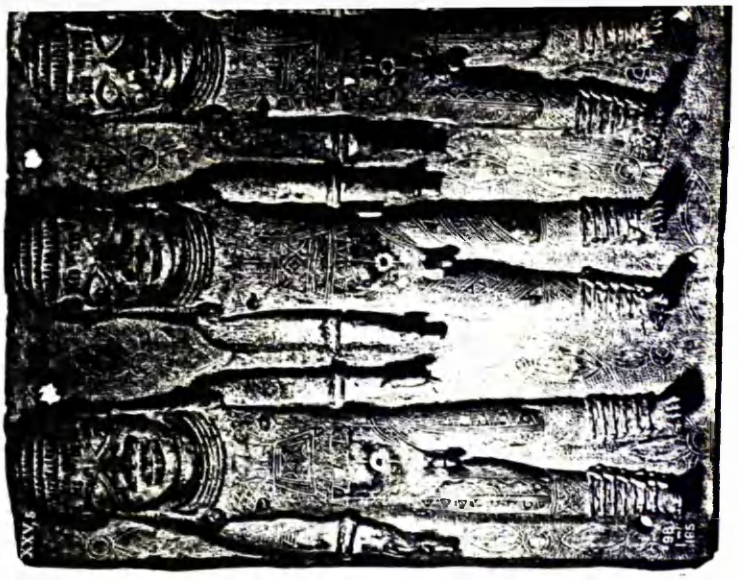
PA:2.Mus.für Völkerkunde Hamburg,
C 2386,37.5x15.7 cm.,2.52 kg.

PA:6.Schwarz collection,
45.1x17.3 cm.,
(Collection photo).

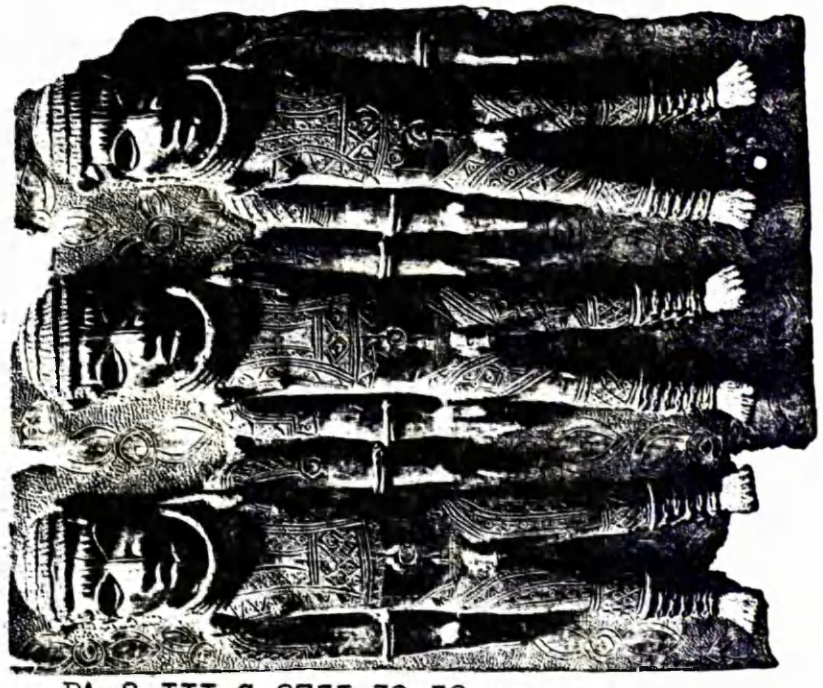
PA:4.BM:98.1-15.169,
43.5x15.5 cm.

PA:5.Mus.für Völker-
kunde Wien,b4715/
5245,38x17.5 cm.

PA:6a. Detail,Schwarz Collection.



PA:7.BM:98.1-15.165.41.5x33 cm.



PA:8.III C 8755.39x32 cm.

PA:9.III C 8256.41.3x17.5 cm.

PA:10.BM:1944.Af.4.8,46x21 cm.

PA:11.III C 8411,37x15 cm.

PA:12.BM:98.1-15.143,46x19 cm.

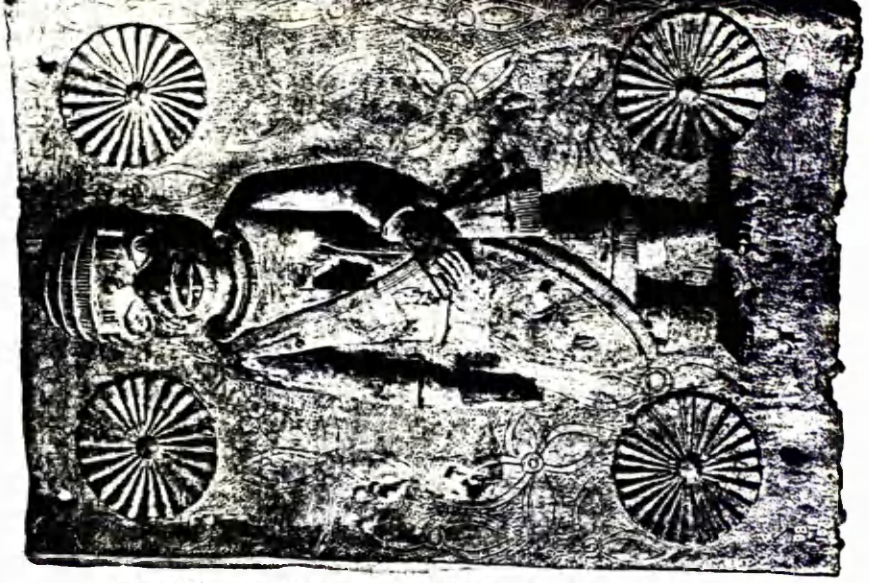
PA:13.BM:1944.Af.4.9,44x18.5 cm.

PA:15. III C 8382,44x20 cm.

PA:14.Horniman Museum,LAB.297-9227,46.4x25.4 cm.

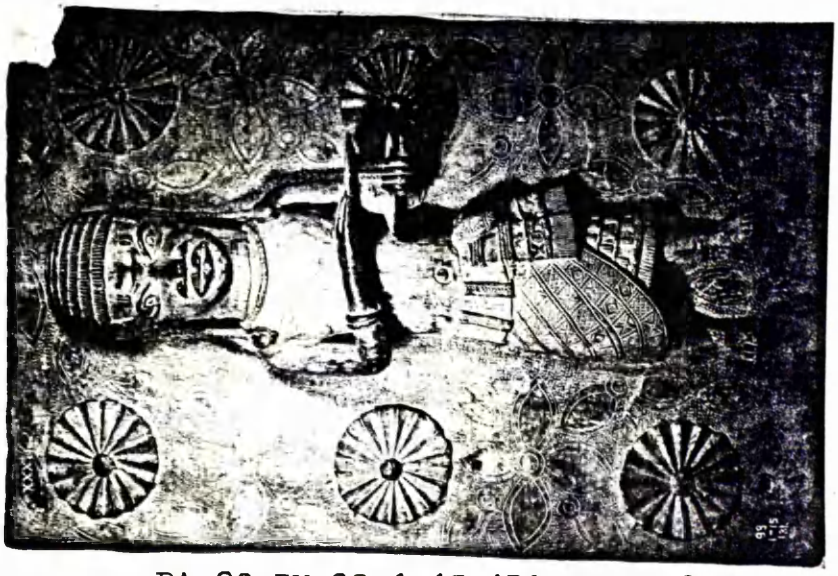
PA:16.BM:98.1-15.140,51.5x34 cm.

PA:17.Museum für Völkerkunde Wien,
5018/04b83,40.5x17.5 cm.



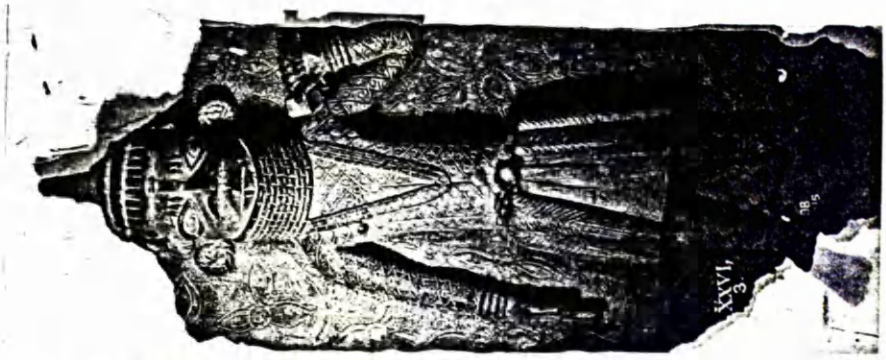
PA:18.BM:98.1-15.157,46.5x31.5 cm.

PA:19.BM:98.1-15.153,44.5x38 cm.



PA:20.BM:98.1-15.131,49.5x32.5 cm.

PA:21.BM:98.1-15.130,50x37.5 cm.



PA:22.BM:98.1-15.66,44.5x16.5 cm.

PA:23.III C 20830,54x39 cm.

PA:25.University Museum Phila.,neg.62679,AF 5109,46x33 cm. (Museum photo).

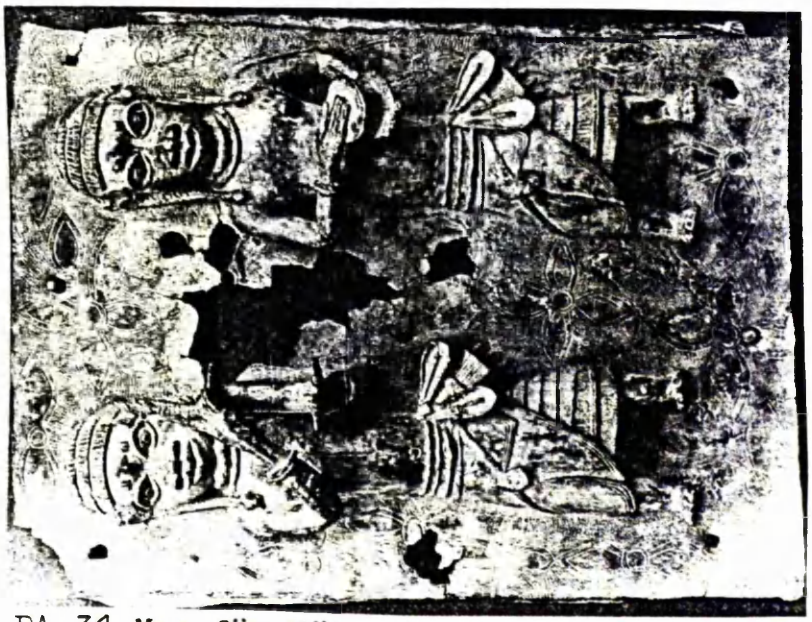
PA:24.BM:98.1-15.155,40 x34.5 cm.

PA:27.Linden-Museum Stuttgart,
no.5394,35x19 cm.
(Museum photo)

PA:26.Field Museum Chicago,
neg.99423,FMNH 89771,
39.6x28.6 cm.
(Museum photo).

PA:29. Denver Art Museum, no. 351-QA,
54.6x36 cm., (Museum photo)

PA:28.Linden-Museum Stuttgart,no.4669,51.6x 34.2 cm. (museum photo)



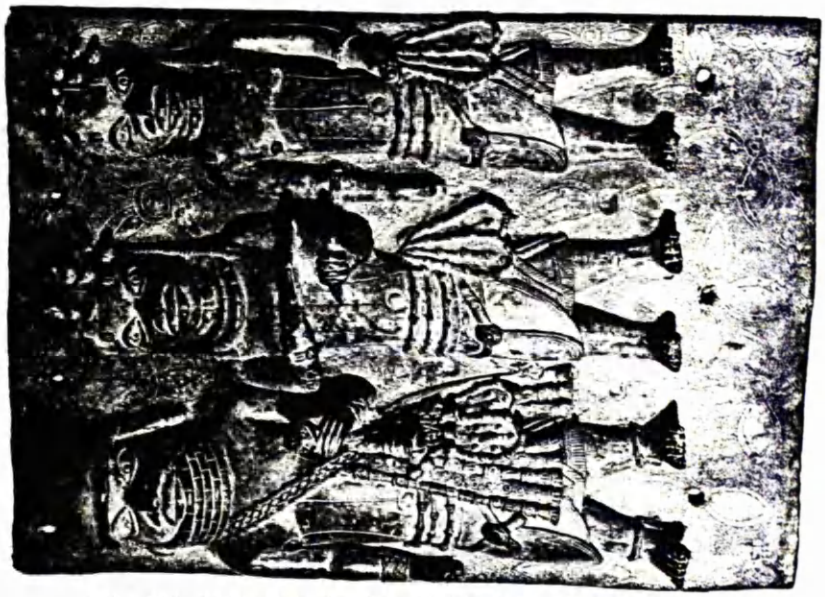
PA:31.Mus.für Völkerkunde Wien,n.n., 44.5x31 cm.

PA:30.III C 8211,32x17 cm.

PA:32.Private Collection,W.F. Kaiser,50.2x37 cm., (Collection Photo)

PA:30a. Reverse side III C 8211

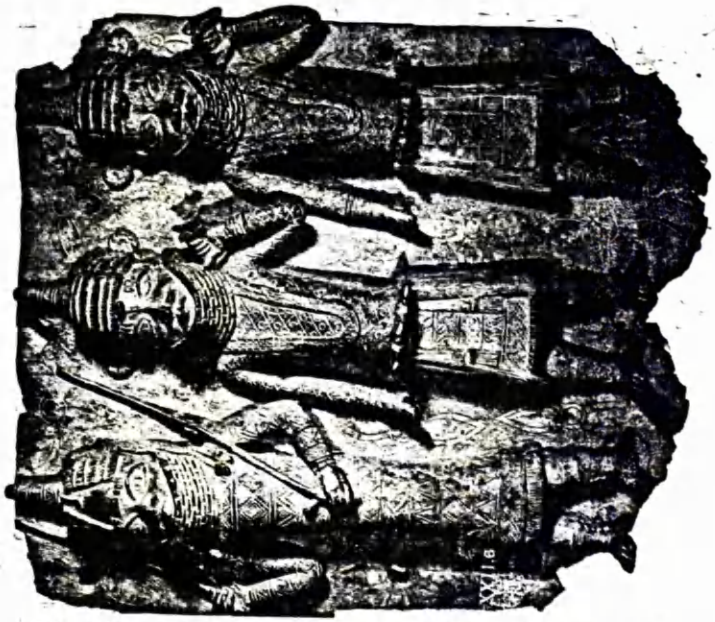
PA:33.BM:98.1-15.144,44x33.5 cm.



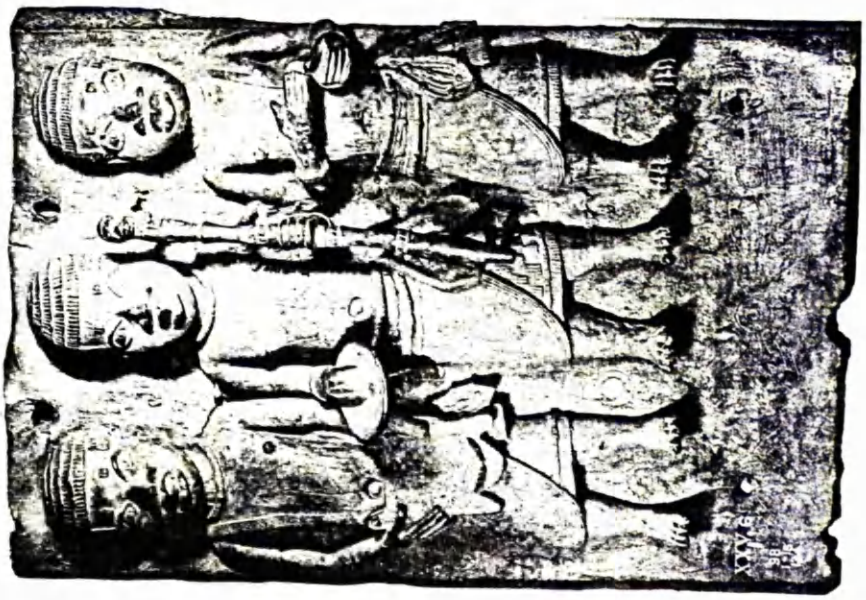
PA:34.BM:98.1-15.132,50.5x36.5 cm.

PA:35.BM:98.1-15.142,44x36.5 cm.

PA:36.BM:98.1-15.145,38x32 cm.



PA:37.BM:98.1-15.65,41.5x36.5 cm.



PA:38.BM:98.1-15.134,51x33.5 cm.

RM:1.BM:1961.Af.18.1,44.5x29.2 cm.

RM:2.BM:98.1-15.129,50.5x37.5 cm.

RM:3.BM:98.1-15.128,44x38.5 cm.

Abb. 223. Trommler mit Prinzenlocke; Helm mit Roßschweifen. Nach P. R. 248.

Abb. 146. Bruchstück von der linken oberen Ecke einer großen Platte; zwei Trommler und ein zwerghafter Mann mit Bogen. Hamburg, C. 2869. Nach Hagen, etwa 1/3 d. w. Gr. (13 × 26 cm.)

RM:4,5.from von Luschan 1919,Abb.223,146.

RM:6.BM:98.1-15.135, 44x16.5 cm.

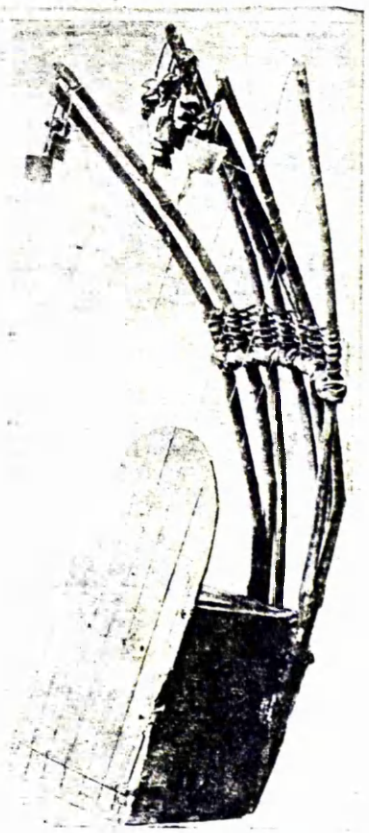
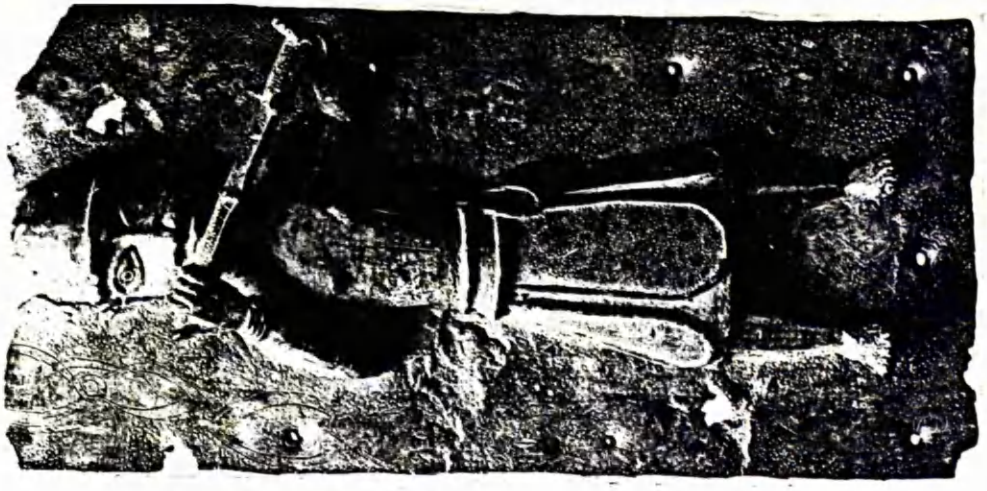
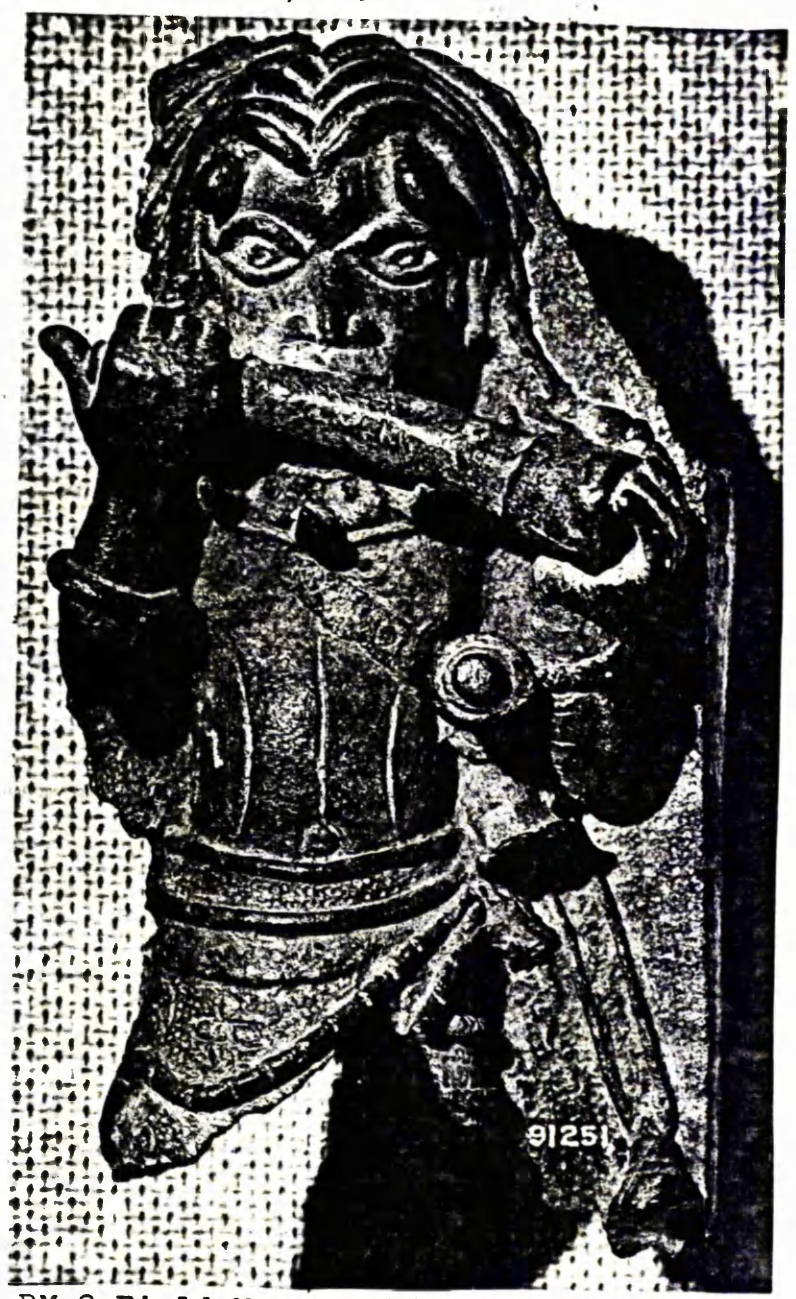


Abb. 317 A. Bogenlaute aus dem westlichen Sudân.

RM:6a.from von Luschan 1919,Abb.317a.

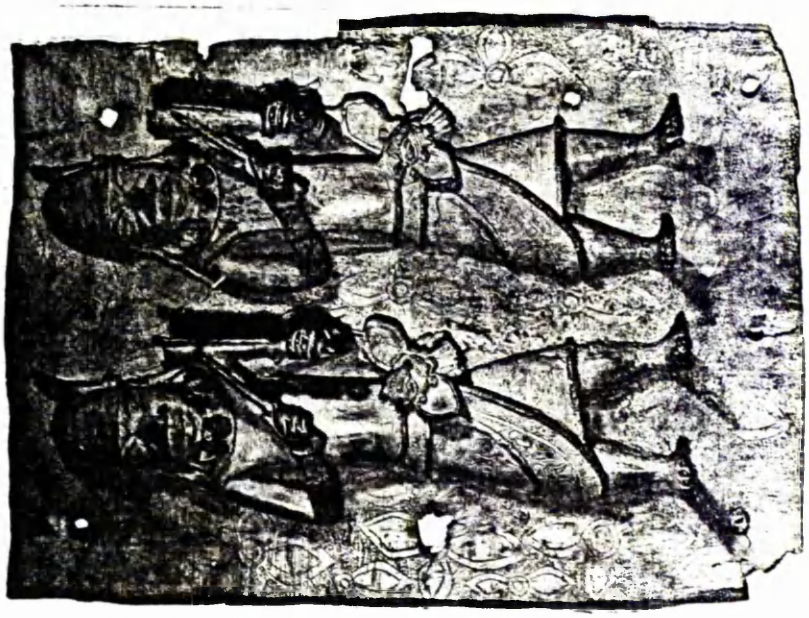


RM:7.III C 8214,39.5x18 cm.



RM:8.Field Museum Chicago,neg.99518,
FMNH 91251,12.1x8 cm.,
(Museum photo).

RM:9.Linden-Museum Stuttgart,no.5369,
45x19 cm. (Museum photo).



RM:13.BM:98.1-15.114,45x32.5 cm.

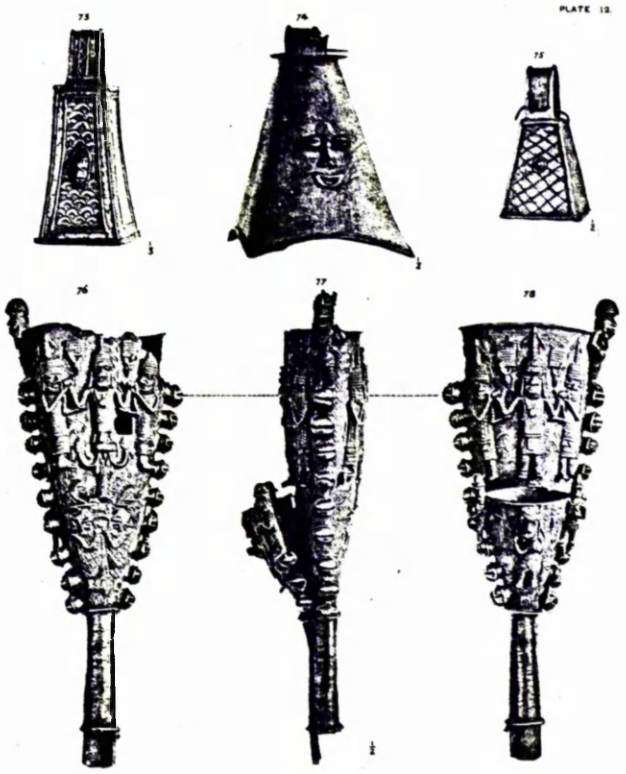
RM:10.III C 8207,47x29 cm.

RM:11.III C 8401,50x19.5 cm.

RM:12.BM:98.1-15.113,45x31.5 cm.

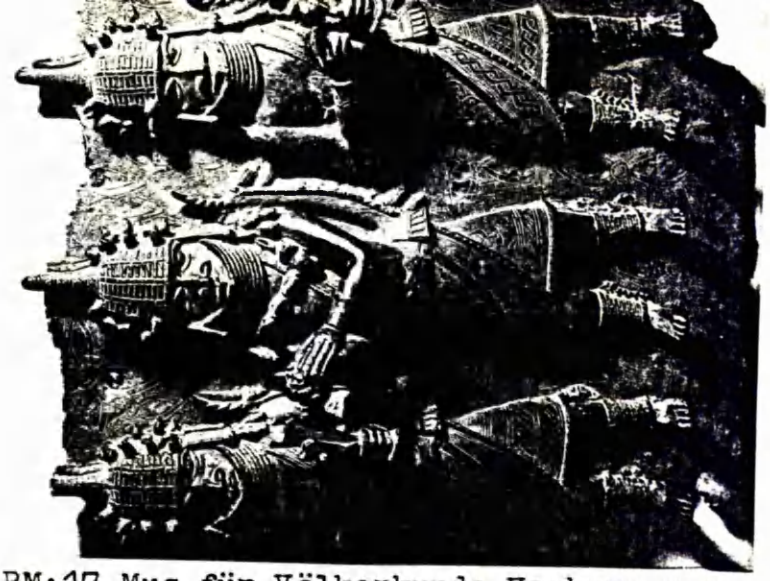
RM:14.BM:98.1-15.118,52.5x36.5 cm.

RM:15.BM:98.1-15.115,50x36 cm.



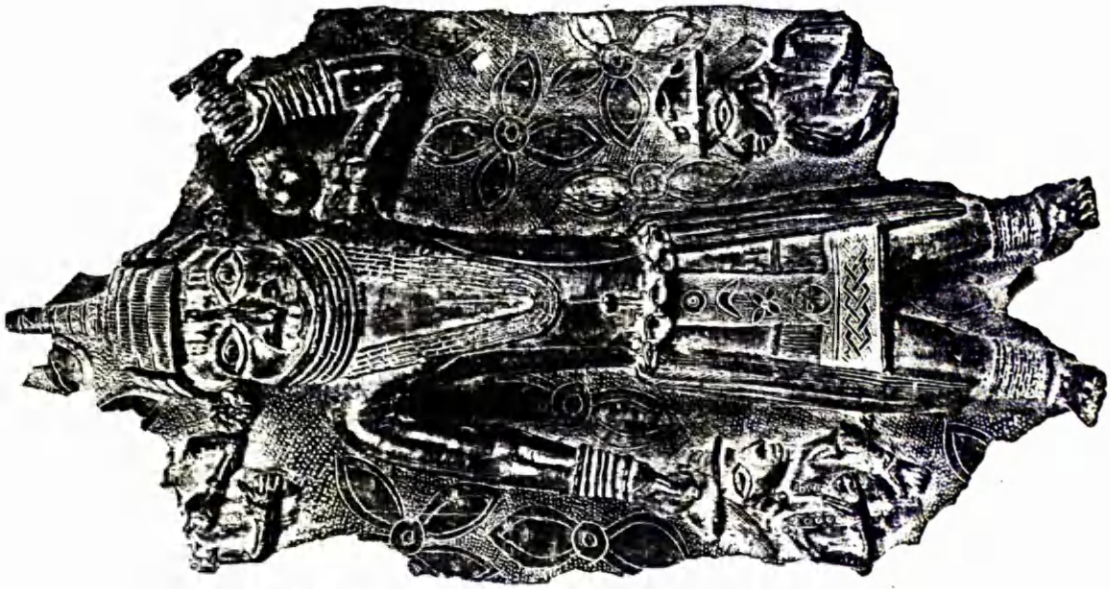
RM:16.from Pitt Rivers 1900,pl.12.

RM:18.III C 8440,
44x30 cm.



RM:17.Mus.für Völkerkunde Hamburg,n.n., 48x38.5 cm.

RM:19. III C 8387,46x17 cm.



RM:20. III C 27506,40x20 cm.

RM:21.Field Museum Chicago,neg. 99439,FMNH 91263,35x22.9 cm.(Museum photo).

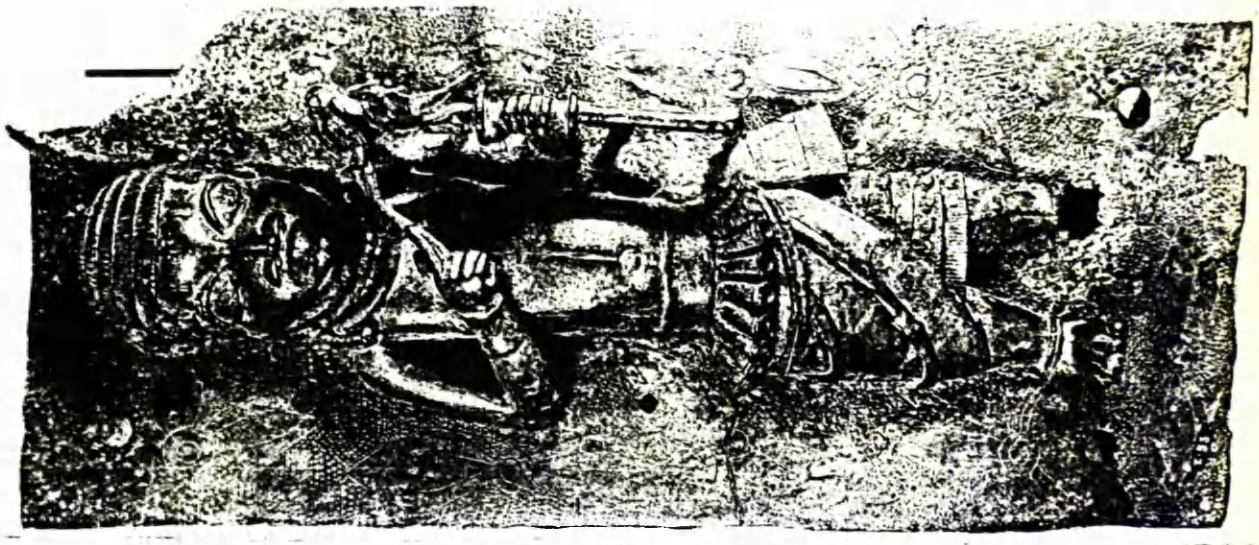
RM:22.III C 27507,43.2x18.1 cm.

(Note:Figs.RM:22-26 may also be considered as belonging to other categories such as HRPS and CNH)

RM:24.Mus.für Völkerkunde Freiburg,
I-51,53x36 cm. (Museum photo)

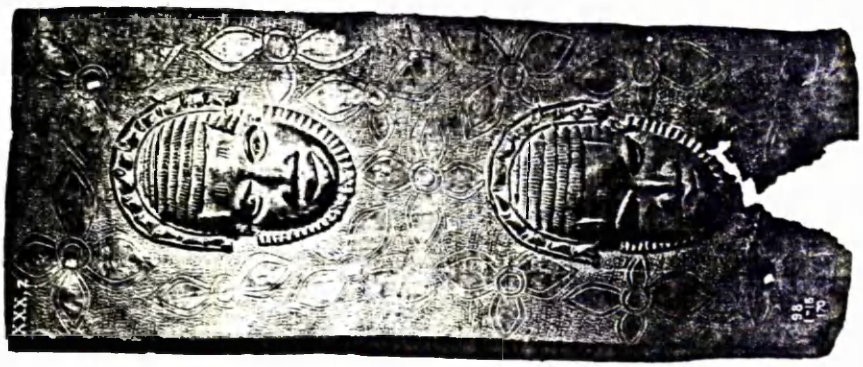
RM:23.III C 8275,43x19.5 cm.

RM:26.National Museum Denmark,G1531,
48.5x38 cm. (Museum photo)



RM:25.Mus.für Völkerkunde Freiburg,
I-53,45x19 cm. (Museum photo)

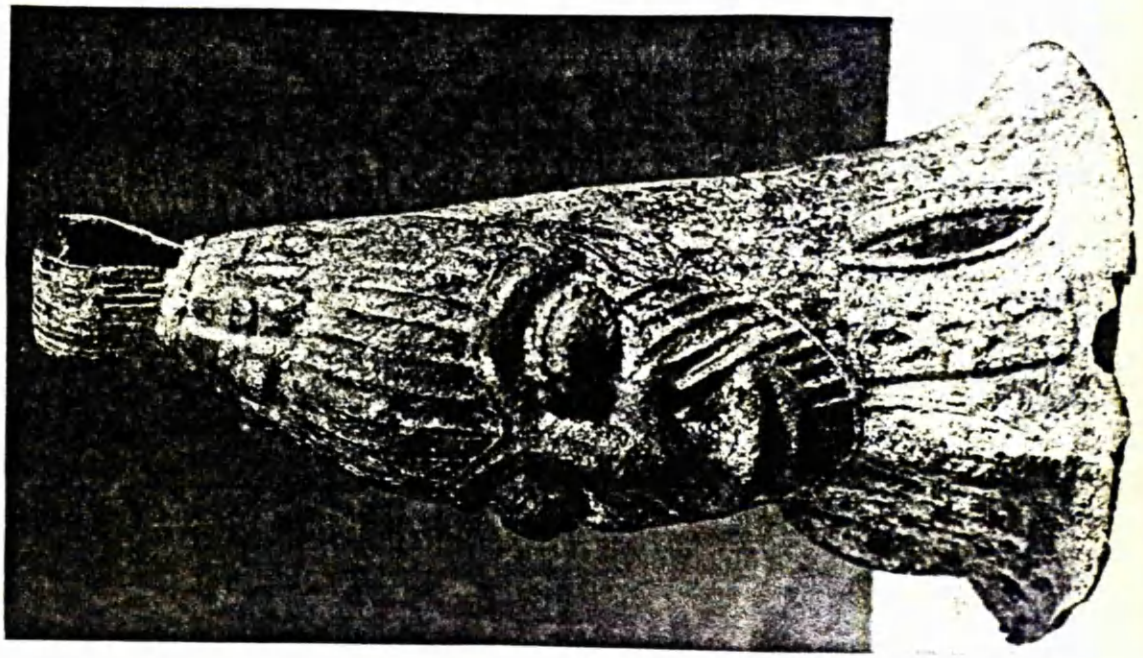
RM:27.BM:98.1-15.120,46x37 cm.



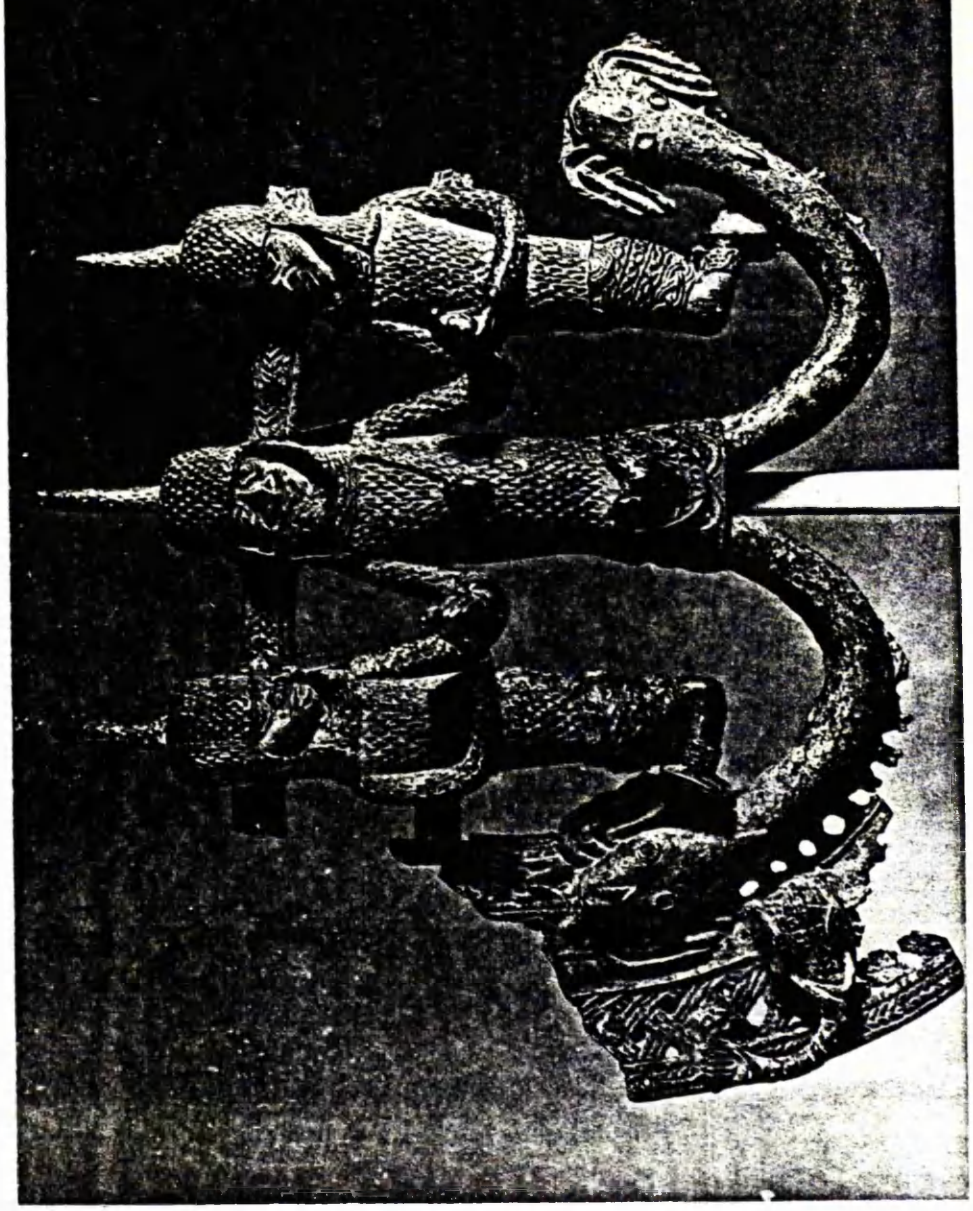
PM:1.BM:98.1-15.170,47x18 cm.

F:1. Brooklyn Museum,no. 56.6.68,26x 23.5 cm.,6.25 kg. (Museum photo)

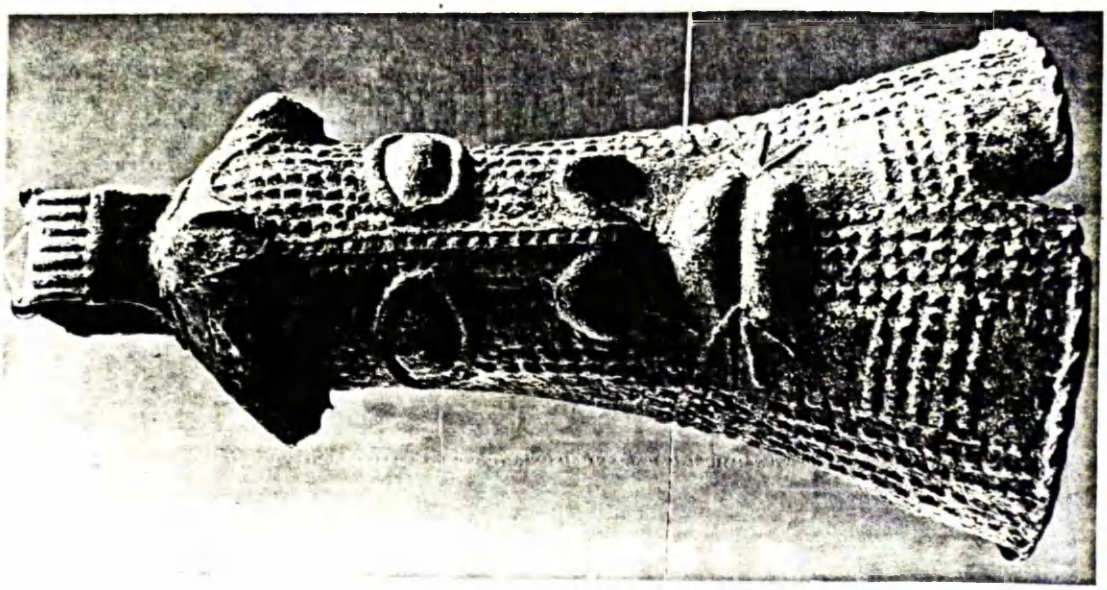
EB:1.III C 19275,ht.24.5 cm.



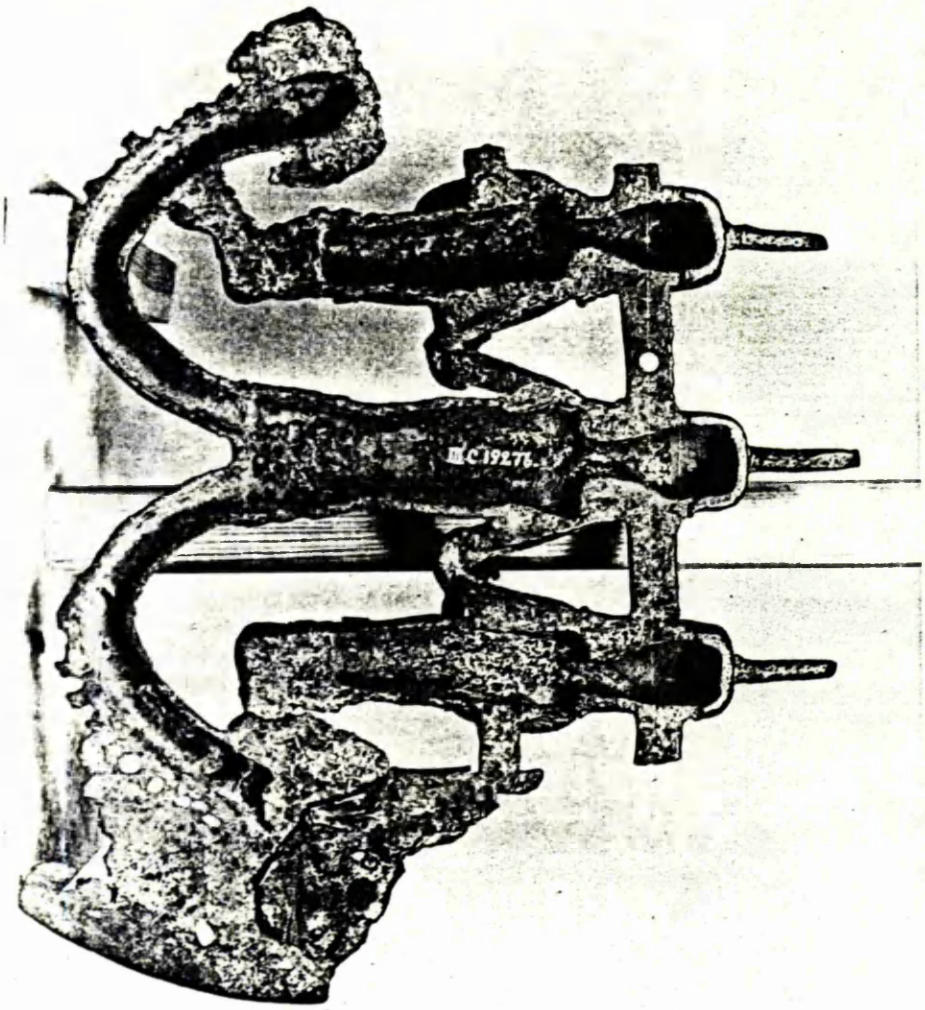
IU:1. III C 10876,ht. 15 cm.



EB:4,III C 19276,23x28 cm.



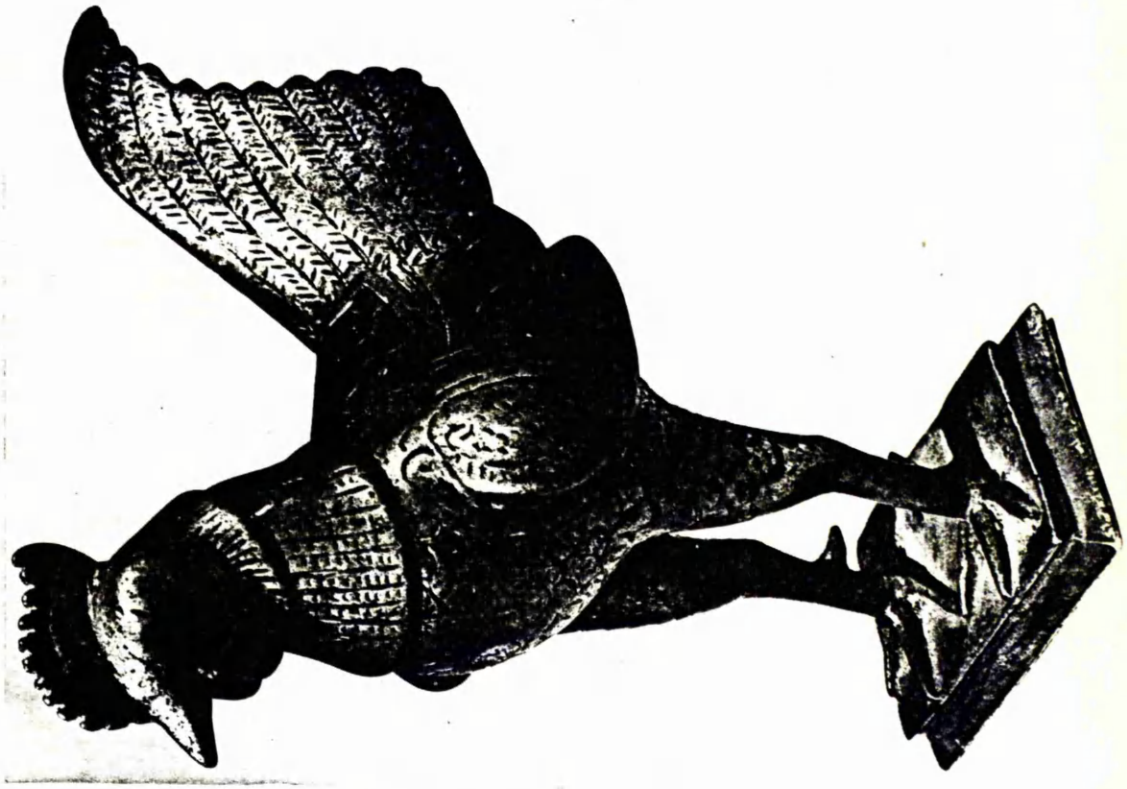
IU:2.III C 10868



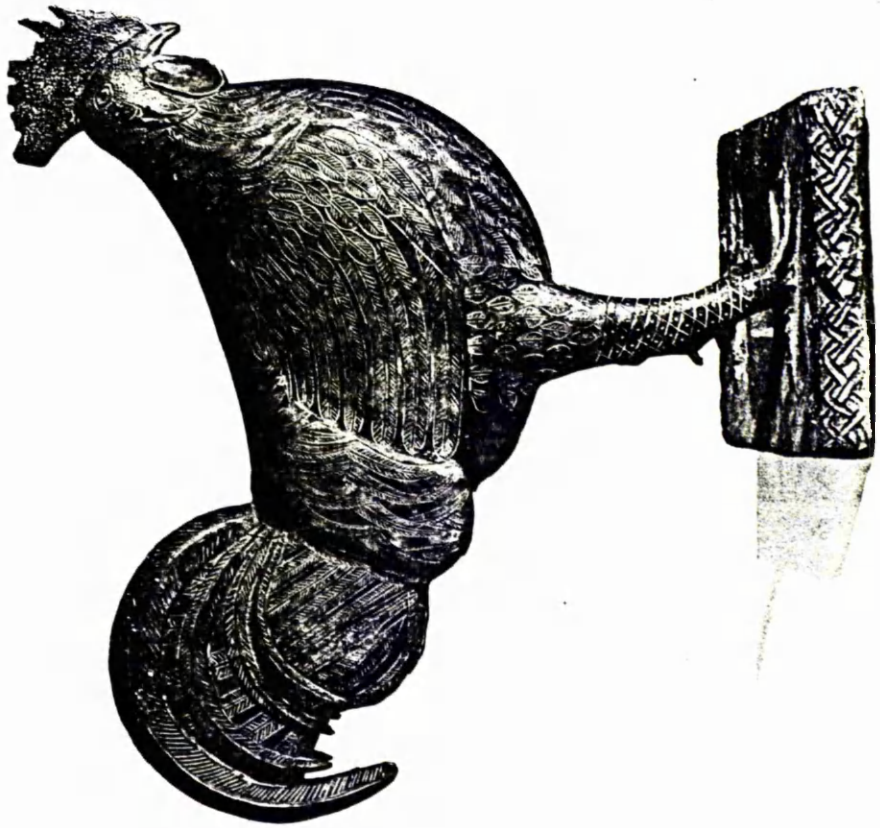
EB:4a. Reverse side III C 19276

EB:2.III C 9948.

EB:3.III C 10873



I:1.Mus.für Indische Kunst,
MIKI.1426 (Mus.photo)



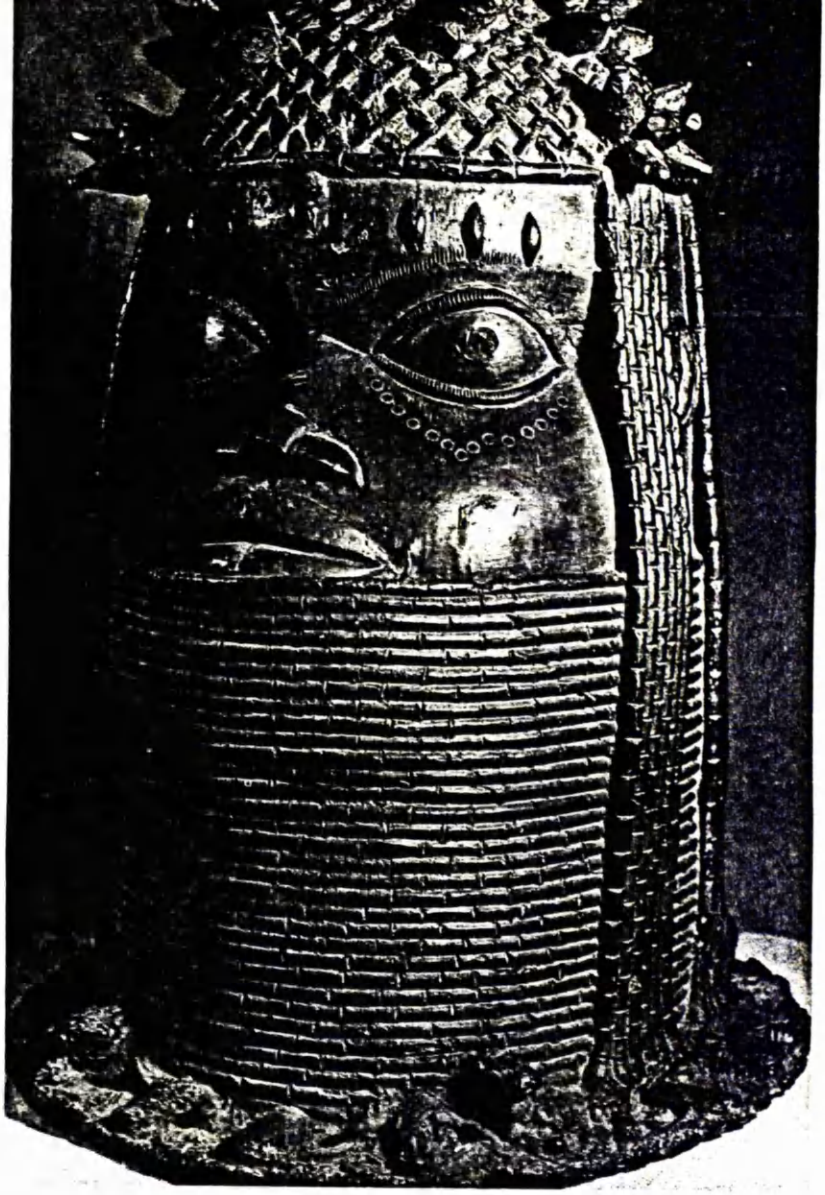
BFS:1. III C 8085

I:4.Mus.für Indische Kunst,MIKI
1386 (Museum photo).

I:2.Mus.für Indische Kunst,MIKI
1245 (Museum photo).

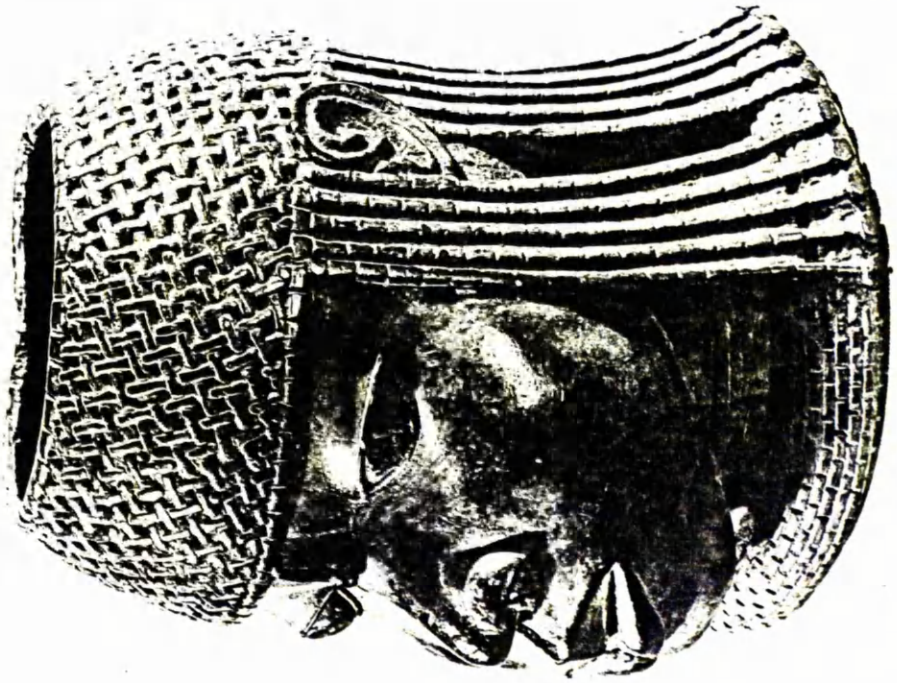
I:5.Mus.für Völkerkunde Berlin,
I C 15002. (Museum photo)

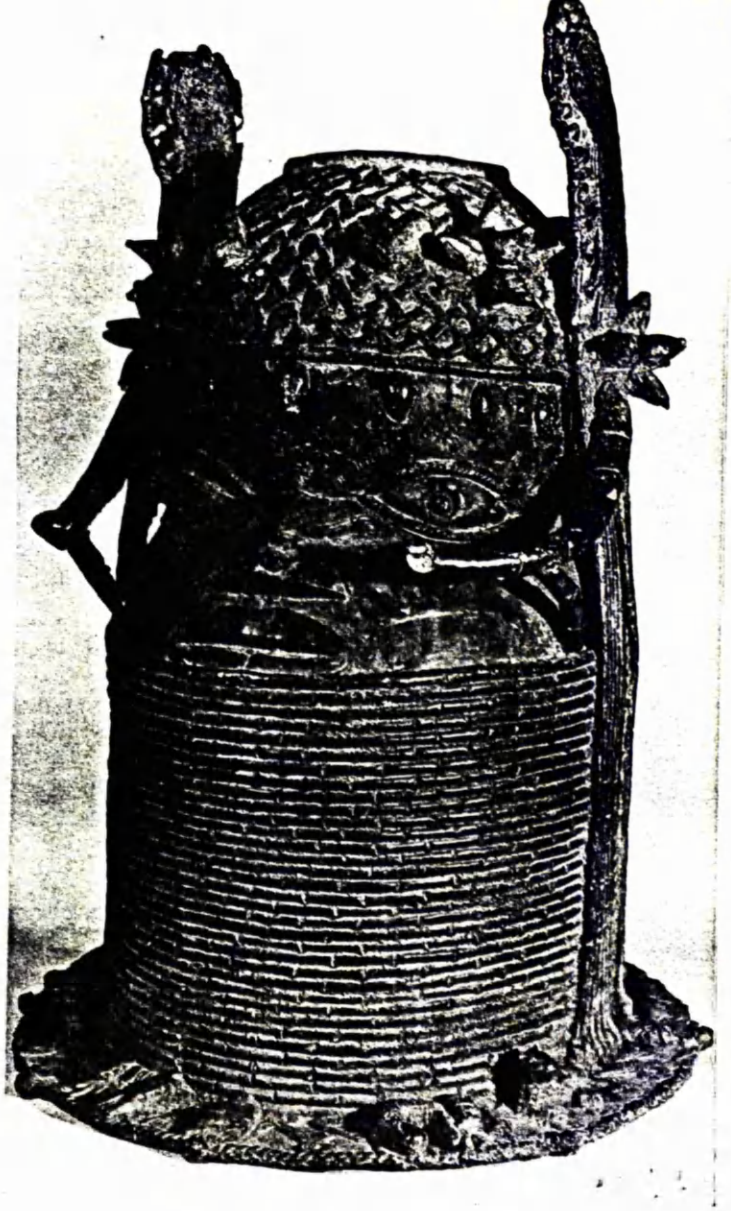
I:3. Mus. für Indische Kunst,
MIKI.1246 (Museum photo)



Heads:4. III C 8176.

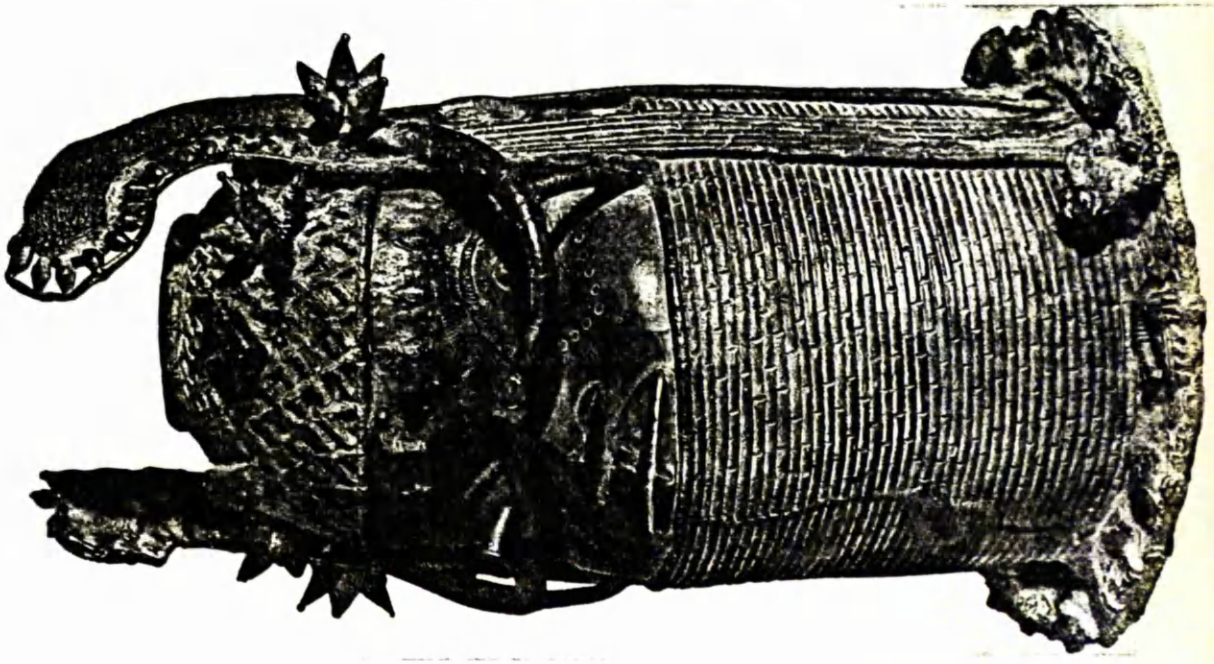
Heads:2. III C 8169



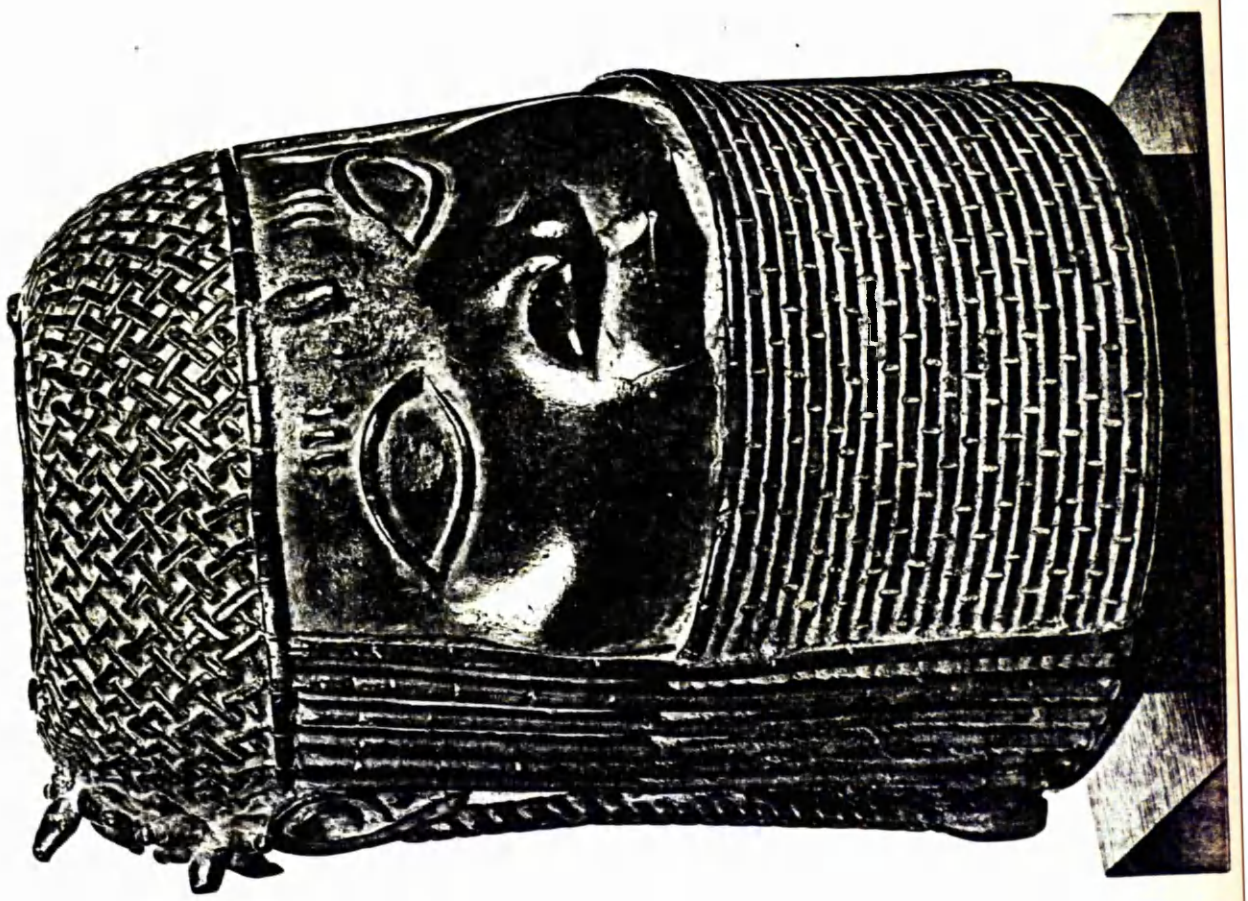


Heads:5. III C 8198.

Heads:5a. III C 8203



Heads:1.III C 8527.



Heads:3.Albright Knox Art Gallery,
Acc:35:18,24.5x17.8x25 cm.
(Gallery photo)

SEE:1. III C 20295,ht.43.5 cm.

SEE:2.III C 20295

SEE:3.III C 20295

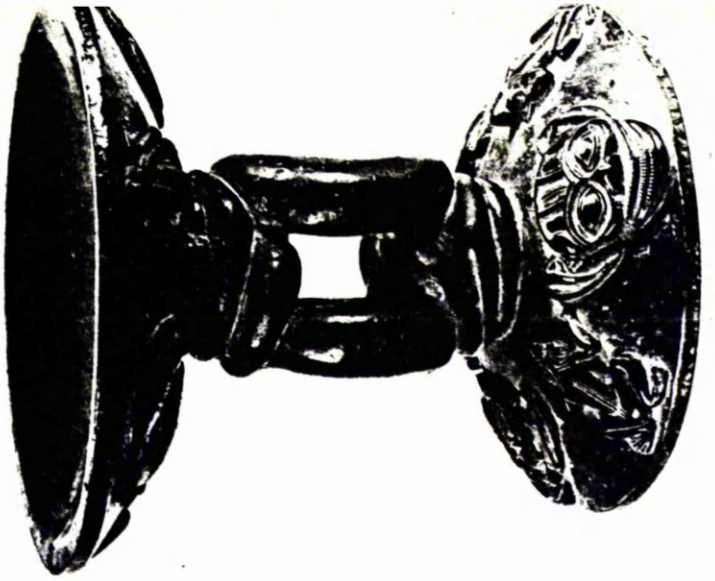
SEE:4.III C 20295

SEE:5.III C 20295.

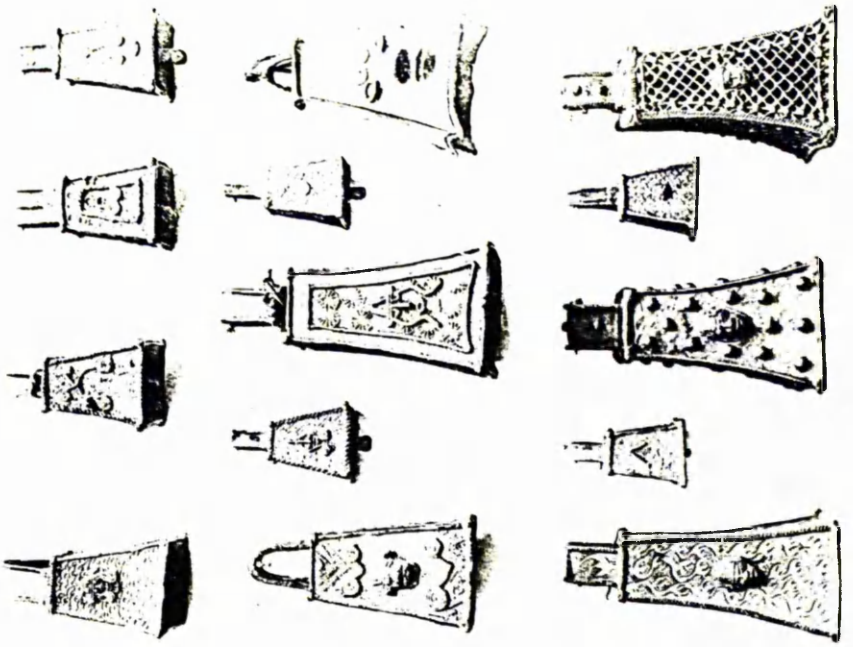
SEE:6.III C 20295.

SEE:7.III C 20295

ST:2.III C 20296,ht.41 cm.

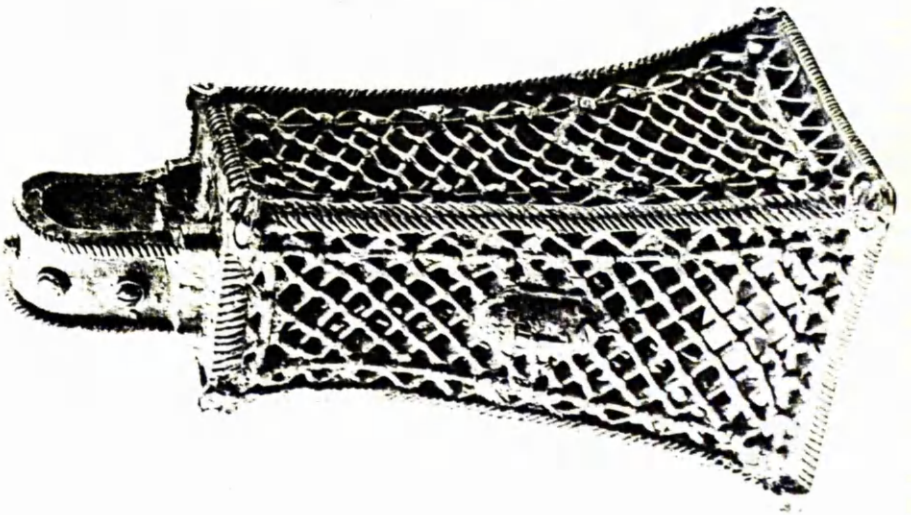


ST:1.III C 20296.



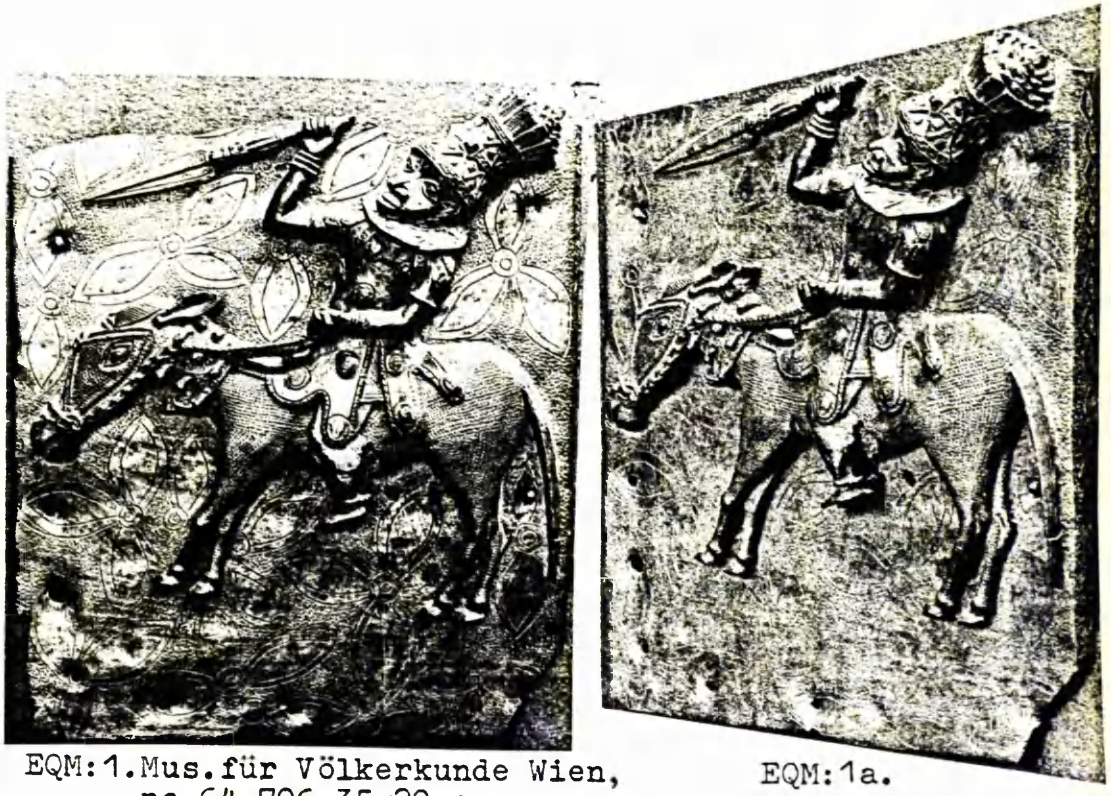
Bell:1. from von Luschan 1919,Taf.94.

Bell:2.III C 8080,ht. 16 cm.



Bell:3.Museum voor Land-en Volkenkunde Rotterdam,no.29965,(uncertain authenticity,Museum photo)

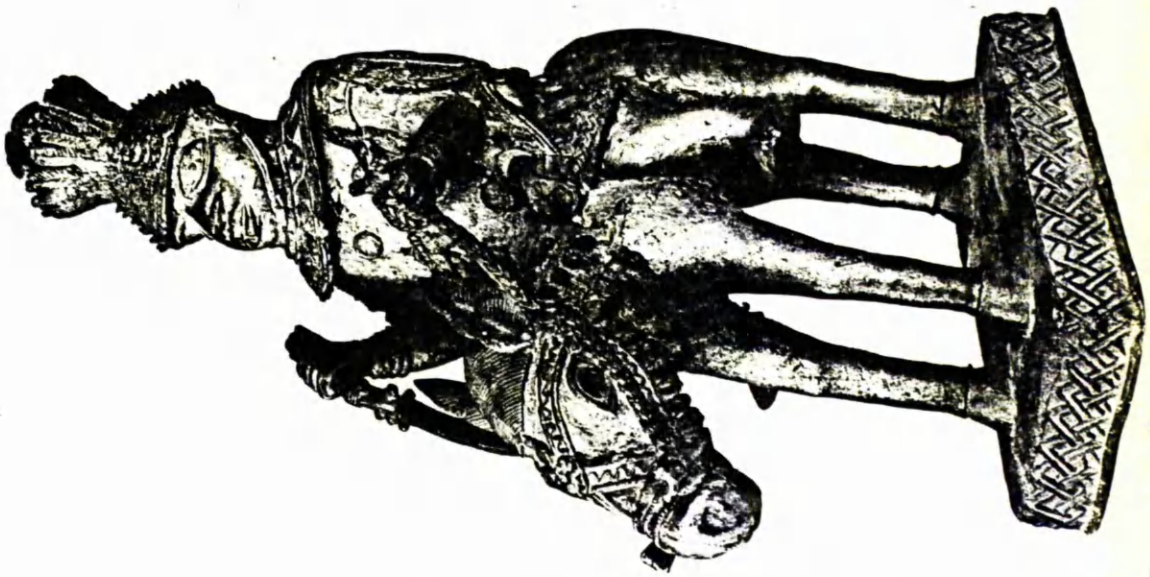
Aquamanile:1.III C 10877,45x77 cm. (see I:5).



EQM:1.Mus.für Völkerkunde Wien, no.64.796,35x29 cm.

EQM:1a.

PFS:1.III C 10863,ht.47 cm.



FE:1.III C 17117,ht.59 cm.

Appendix:6.Merseyside County Museum,neg.N.75-1028, acc.no.24.4.1899.9,40x38 cm.,see WCS series (Museum photos).

Note:Figures Appendix:1.-5.may be found in WSH group.

Appendix:7.Reverse side,acc.no.24.4.1899.9.

Appendix:8.Field Museum Chicago, neg.99437,FMNH 91245,33.6x12.7 cm., (Museum photo)

Appendix:9.III C 8255, 47x35.2 cm.

Notes

1. The prefix BM refers to the British Museum London.
2. Rim dimensions and weights of the entire British Museum plaque collection may be found in Appendix IV, Volume I.
3. The prefix III C and I C refer to the Museum für Völkerkunde Berlin.

Acknowledgements

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The following collections were photographed by the author: British Museum; Horniman Museum and Library; Museum für Völkerkunde Berlin; Museum für Völkerkunde Hamburg; Museum für Völkerkunde Wien; University Museum of Archaeology and Ethnology Cambridge.

My sincere thanks to all.